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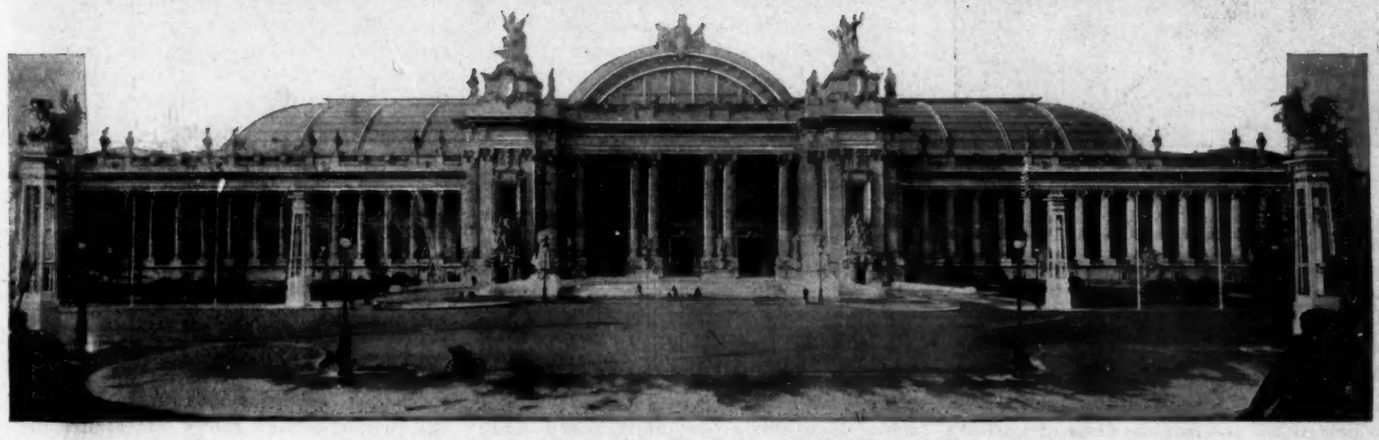
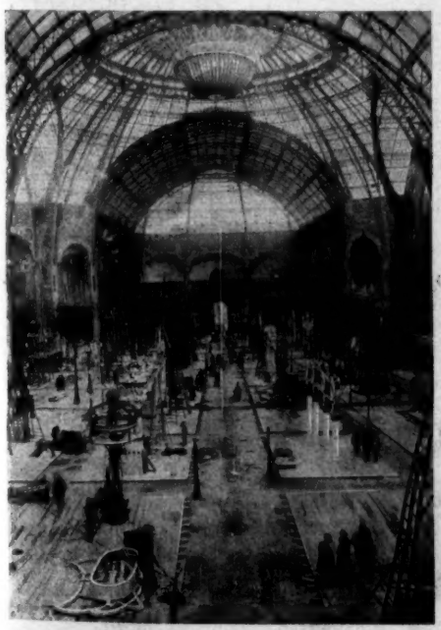
MOTOR AGE

PARIS MAINTAINS ITS SHOW PRESTIGE



IMMENSE AND IMPOSING STRUCTURE WHEREIN THE 1906-7 PARIS SALON IS HELD

PARIS, Dec. 7—Whatever truth there may be in the claim made on behalf of the London Olympia show to be the chief European market for motor cars, there can be no dispute with regard to the position of the Paris show as the one most internationally representative of the world's motoring industry. The extent, beauty and diversity of the French show has not yet been done justice to in print, and presents so difficult a task that nobody has attempted to do more than outline its character and features. The splendid grand palace in the Champs Elysees is insufficient to hold even the pleasure section of the exhibitors, and for weeks past a huge wooden building has been rearing itself along the Esplanade des Invalides—a sort of outworks to the Salon d'Automobile, intended to accommodate the heavy motors and tractor section, the commercial motor vehicle. It is very plain that the French are not going to surrender the commercial vehicle trade.



TWO DAYS BEFORE THE OPENING

Internationally regarded, the advance of Italy is the feature here, as it was in London. Germany makes a bold show—bolder than in London, where only the Mercedes car really has any vogue among German-built cars. Belgium cuts a bigger figure than Great Britain, whose leading manufacturers apparently do not regard the French market as promising, or are too keen on securing their own to spend time and money advertising under disadvantages. Even Austria, Holland and Switzerland make almost as big a showing as Britain, whose companionship in modesty is shared by America. But there is a great difference between the native products and American and British makes. The majority of French and other continental exhibits are priced from $2,500 upwards in chassis form, while in the Olympian exhibition the most run after type of car was that which ranged between $1,500 and $2,500, ready for the road. The French manufacturer has doggedly refused to cater to the strictly commercial interests, and while the policy has resulted in France possessing a large number of highly developed designs and a roll of manufacturers of an importance almost equal to the remainder of Europe combined, it appears likely to bring retribution in its train now that the buying capacity of the moneyed classes seems to have been largely exploited. The majority

REFINEMENT IN DECORATION

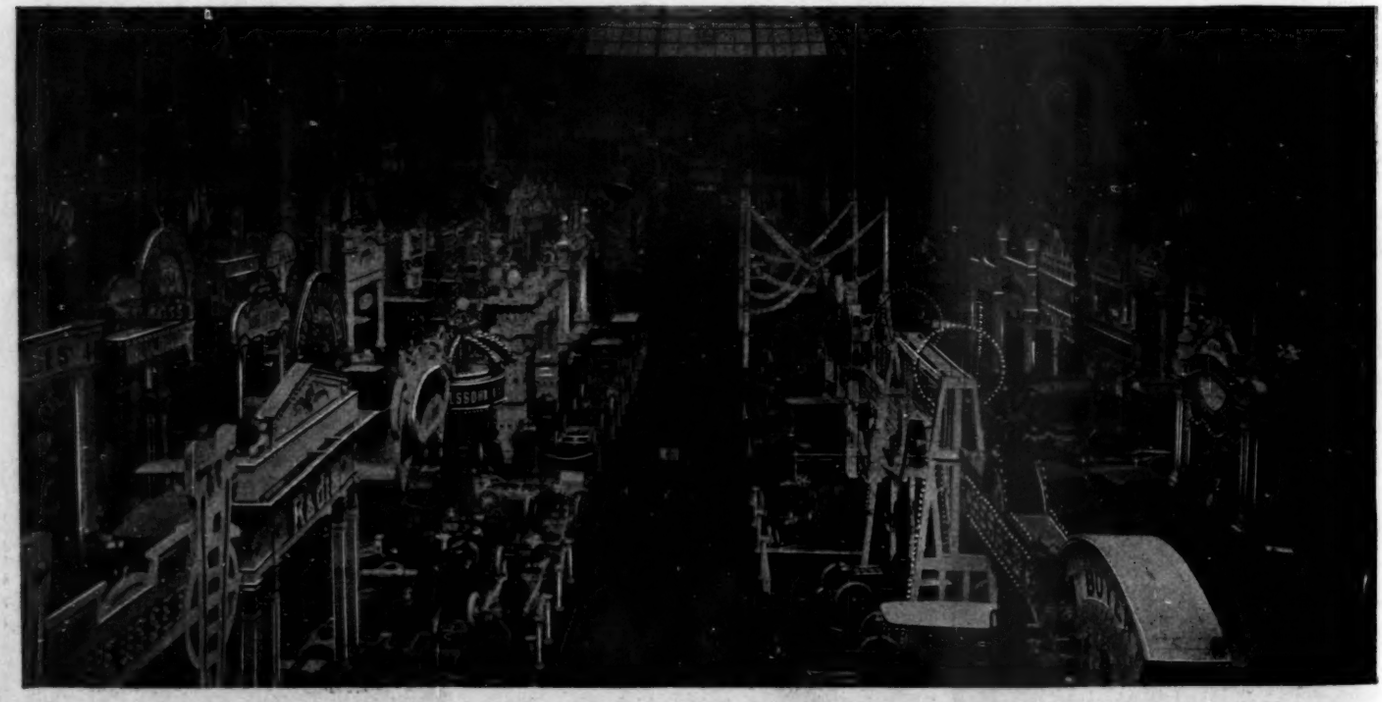
PRESIDENT FALLIERES A VISITOR

of the trade of the near future is undoubtedly in the hands of the motorist who is content with a moderate-powered, strictly moderate-priced car—in which line France is not nearly so strong even now as is England. French manufacturers complain that England has industrial advantages in the shape of cheaper material and labor, which enable the medium class of trade to be attempted more successfully than is possible in France, but it is evident that with concerns like Darracq's doing such a huge business in Great Britain and earning almost $1,500,000 profit in 1906, there is more in the situation than mere local conditions. The French manufacturer, as a rule, is much better placed and is more disposed to do a 100 or 200-car per annum trade with a clear profit of $750 to $1,000 profit on each, than double those outputs at a $500 to $700 profit. He has hung on to it so long that he will have to hurry out to escape a crisis.

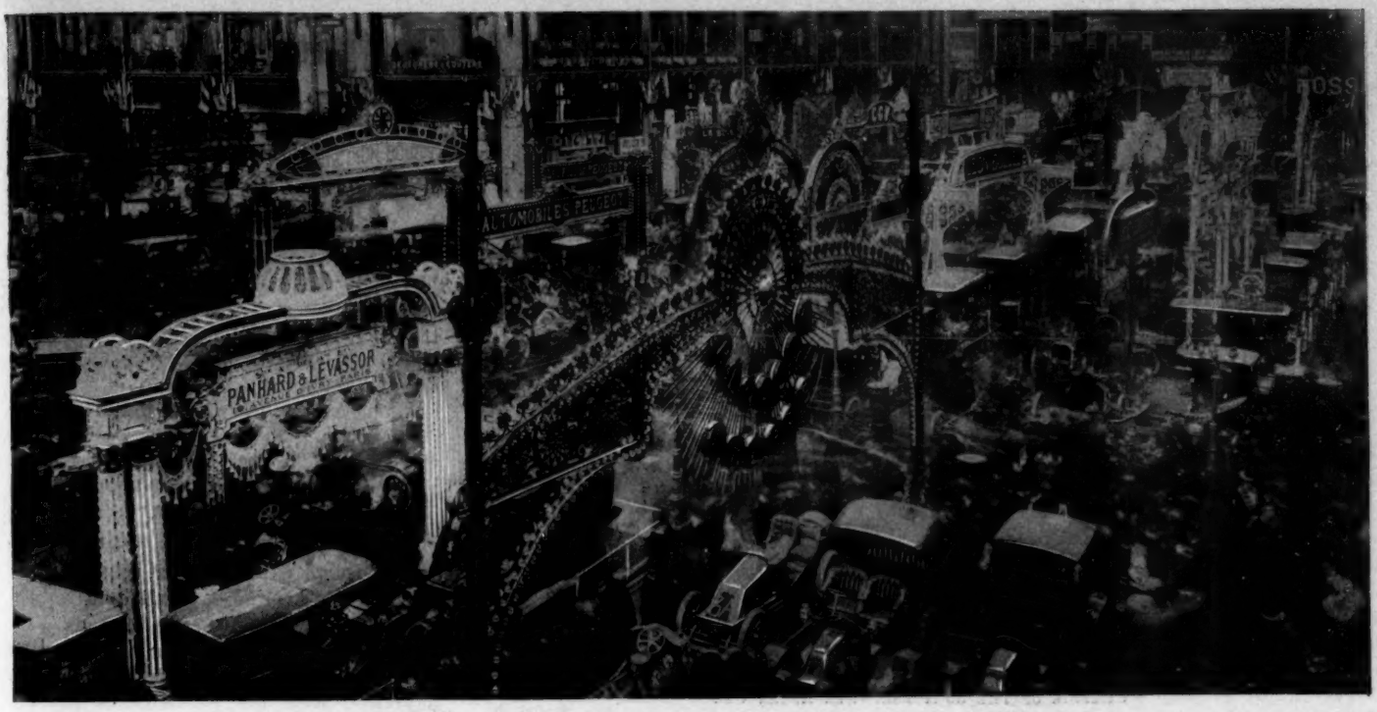
This year the salon opened, as usual, on a Friday, and the minister of public works, accompanied by the president of the French republic, took part in the inaugural ceremonies. Everything practically was finished, although up to midnight Thursday much remained to be done on the stands and nttings. The morning was taken up in the inauguration proceedings and the usual flattering observations were made. The remainder of the opening day was devoted to fashionable visits, for entry was obtained by invitation only. A peep around the show discloses a bewildering mass of glorious stands, cars and chassis being almost hidden in the foliage and bunting.

Critics declare the hit of the show, as regards great touring cars at least, are two immense and really gorgeous touring cars exhibited by the Darracq-Serpollet company. Last year there was a car shown by a concern which was built as a freak and taken as such, forming a house on wheels. These Darracq-Serpollet cars are almost as long, and they are no freak cars. They are tourist cars, with bona-fide steam engines of 30-40-horsepower and burning under their steam generators heavy crude petroleum. Their appearance would almost indicate a gasoline car, but the Serpollet engines have a particularly neat appearance. The body of each is a double limousine, one holding easily eight to ten comfortable armchairs, leaving plenty of room to move around. Nothing need be said to exaggerate the luxuriousness of the upholstery, made, of course, specially for the show. On the top is space for six to eight good-sized trunks, similar to cabin trunks. The Bergougnan tires are simply immense—8 inches in diameter. The second is rather smaller, but the six chairs may be converted into two beds. There are still to be seen racing cars in the salon. The Lorraine-Dietrich is exhibiting two of the type which probably will be seen in the 1907 grand prix. The size of the motor is considerably diminished compared with those in the 1906 competitions. The Mercedes people are showing a novelty in the shape of malleable iron and cast-steel chain cases. The chain is entirely enclosed, top and bottom, and the cap over the pinion can be removed for inspection. In fact, the pinion itself can be taken out without removing the chain case. It is well designed and not too heavy. Its thickness is uniform—3-32-inch. A bracket secures its middle portion to the chassis.

Mechanically, the feature of the salon is the general adoption of the six-cylinder principle. This has been caused quite as much by considerations outlined above as from any inherent mechanical advantages of the design. It enables the higher-priced car to be continued and affords a successor for the high-priced four-cylinder car of last year. It is a great triumph for the English Napier, which in the British section shows an artistically finished chassis that comes quite up to the most elaborate effects of the leading French ateliers. It differs materially from most of the standard French designs in its level frame, which is furnished with one rear spring hanger angled round from one side member to the other to carry a transverse inverted semi-elliptical spring shackled to the rear ends of the ordinary



VIEW OF THE PARIS SALON LOOKING DOWN THE CENTER AISLE TOWARD THE CENTER



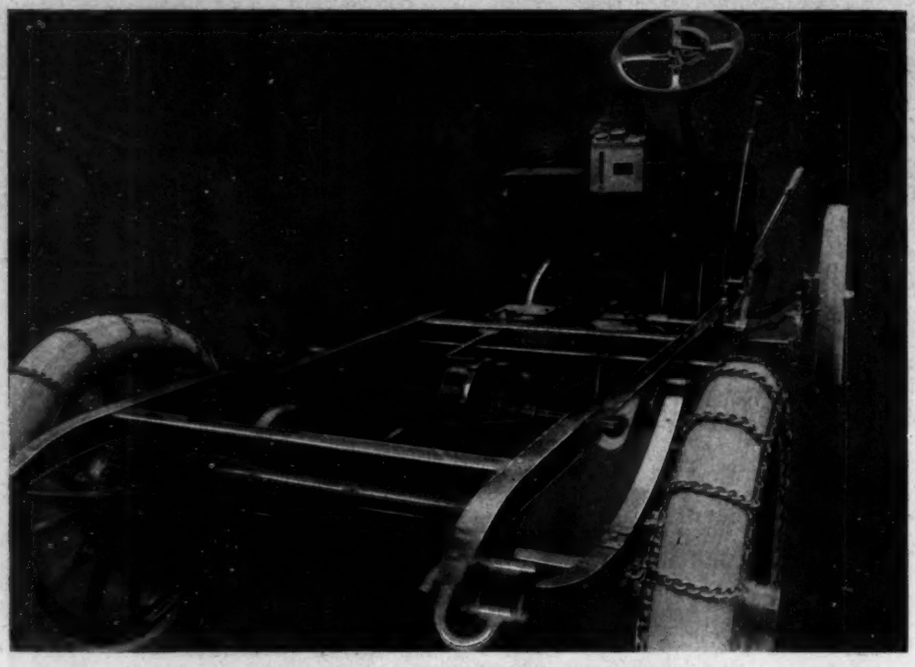
GENERAL VIEW OF THE SALON SHOWING THE GORGEOUS DISPLAY OF SIGNS

side springs. Most continental designers upsweep their frames to clear the differential case. The gate type of change speed gear motion is used, but a spring movement is introduced by which the secondary shaft gears are thrown entirely idle when the top gear—there are three—is in operation. This, of course, makes for silent running, and silence has become a sine qua non in the expensive motor car today. It is the best talking point—a sure case of silence being golden.

The splendor and ornateness of the French show, ever an unequaled feature of the salon, has this time reached a bewildering climax. The huge artificial sun, which last year set all Paris agog with delight, is reproduced with even greater magnificence and fuller concomitants. Words cannot feature the gorgeous effect of the illuminating scheme, which when swung on turns the palace and its surroundings into a miniature sea of light, rainbow-hued, overpowering in effulgence, dazzling to contemplate, yet so harmonious, so artistic as to beggar any attempt to convey its enchantment. The motive power demanded is said to be such that the electric trains have to be robbed of their power to meet it. The main hall of the palace is one glowing, pulsating radiance, every beam and girder being outlined in glow lamps of manifold hues. Outside the avenue between the two palaces is one vast stream of light, equaling the noonday sun of June in intensity, while chains of lamps are carried over the Pont Alexander III to enarch the subsidiary heavy motor vehicle section at the Invalides. They also extend along the Avenue d'Auton and those portions of the Champs Elysees which join the grand palace. As a result of all this the sky is lit up with a fiery glow, seen reflected in the clouds for many leagues around Paris. But the daylight aspect of the show is not one whit less beautiful. Never before have stands been so elaborate or so exclusively artistic. This fashion, set 2 years ago by the Bayard people with a $10,000 scrollwork metal character, has been so copied that the most exquisite has become merely commonplace, so general is the magnificence and refinement. The de Dietrich takes the form of a gloriously illuminated double cross of Lorraine, the Darracq has a sign flanked by two huge globes supported by caryatids with a huge globe supported by marble giants. The Mendelssohn stand is fashioned after a royal crown, exceedingly effective when well lit up at night. The Rebour, another minor exhibit, has a plaster front shaped in the form of two half-cranks with a cross piece representing a motor with four separated cast cylinders. The Brèscia-Zust stand is in a bad position, but remarkable for the artistic effect produced of a sea cavern suffused with light. The de Dion, Aries, Pilain and Leon Bollee people all have novel effects, but magnificence is merely commonplace. The most conspicuous stands in the palace are the Panhard, Mors, Renault, de Dion, Bayard, Peugeot, de Dietrich, Darracq, C. S. V., Brasier, Chenard-Walcker, Berliet, Rochet-Schneider, Hotchkiss, Gladiator, Gobron-Brillie, Delahaye, Decauville, Brouhot, Delaunay-Belleville, Aries, Boyer, Cornillean & Ste. Beauve, Vinot & Deguingand, Westinghouse, Gilet-Forest, Hurtu, Georges-Richard, Ader and Krieger & Corré. Those are all French, but Italy's division, if not so lavish in magnificence, is all there in staff. It comprises the Fiat, Itala, Rapid, Bianchi, Zust, Isotta-Fraschini, Marchand, Florentia, Standard, of Turin, Aguila, Lombards, Junior, Hermes, Spa and Brèscia-Zust. The British contingent is small and quiet in comparison, comprising merely the Daimler, Argyll and Enfield cars, but the Napier is also shown, though not under its own size. Germany is represented by the Mercedes and Benz, while the Germain, Pipe, Metallurgique, Fabrique Nationale and Minerva stand well for Belgium and the Spyker for Holland.

Critical visitors who have seen previous salons will have one main idea forced upon him—the vogue of the Mercedes car has departed. Hitherto every feature of the German car has been imitated or subverted, or at least assimilated in some form by most of its French competitors. Now it has fallen into the commonplace and the name once so magical has little

DARRACQ'S IMPOSING SIGN



CHASSIS OF THE 30-HORSEPOWER ASTER CAR

music in it today. Whether this has arisen out of any stagnation of ideas at Cannstatt or because the fresh features of the Mercedes people do not commend themselves is difficult to say, but it is certain that no fresh god has arisen to depose the German idol. It has simply enjoyed its brief day, and unless some mechanical marvel occurs will go the way which Panhard & Levassor, Mors, Benz, Rochet-Schneider and others have gone. Probably the most highly regarded French car today is the Renault, but nobody has set out to copy it as these others were imitated. Another feature which one finds to note is the decline of the so-called automatic carbureter. In many cases a revolution has occurred to the older forms—sometimes with the addition of a supplementary air valve, sometimes automatically controlled by the engine speed, sometimes by the driver in addition, but it seems very evident that the position simply indicates transition and uncertainty. The automatic carbureter has been found out, but nobody has apparently discovered any device that does not possess similar or compensating weakness. Firms like the Renault, Itala, Pipe and others have certainly set a good example in the short leads they give from carbureter to explosive chamber, thus preserving equality of feed and quicker response to the throttle. But there are very many who still piston their engines with long leads and many curves and twists to their induction pipes, and one cannot help suggesting that the most automatic device could not work satisfactorily under such conditions. In this way the de la Buire carbureter seems to be the only feature to correspond with the various fresh carbureter devices that made their appearance at the London show and much commented on. Racing successes of firms like Brasier, Mettalurgique and others, which have viewed the desaxè or decentralized motor crankshaft, led many to anticipate a very large measure of imitation in this feature, especially as there are no patent difficulties in the way. But the idea has not caught on, and while there are a few fresh adherents, it is evident that either as a talking point or a mechanical feature the desoxè engine is not going to cut any figure in 1907.

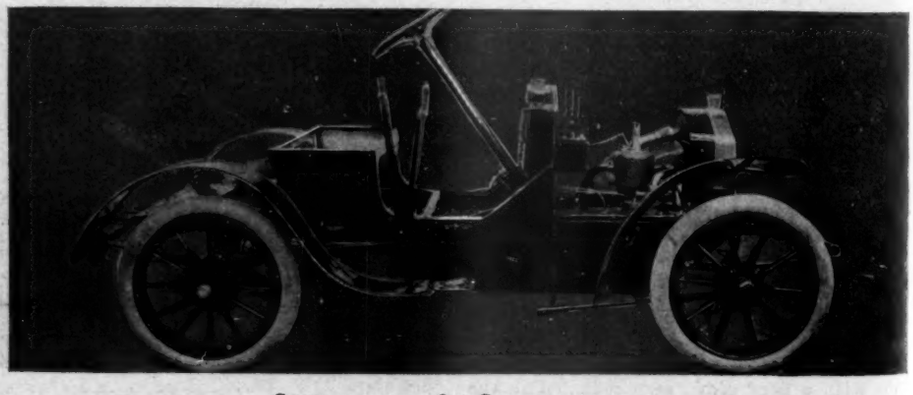
In engine construction one finds single, double and one-block cylinder castings employed, showing once more that either designers are more independent or that factory considerations have led to its simulation. Cars like the Mors have all their four cylinders cast in one piece, while a daring six-cylinder designer had all his lot in one block—a feature which, seeing that the average of rejects in four-cylinder blocks runs up to 20 per cent, discovered only after machining, seems a trifle too expensive for most manufacturers to adopt, whatever its technical advantages. Quite a third of the designs shown have separate cylinders, despite the disadvantages known to exist from unequal expansions, entailing distortions on connections, valve sets, etc., a fact which goes to show that the single block casting has too many masters to be commercial in the face of the decline in prices.

There is a distinct tendency, however, to bring all valves on the same side, the resistance of firms like Renault, de Dion, Brasier and Darracq to the fashion introduced by Mercedes having, it is pointed out, apparently given heart of grace to smaller firms to return to the more economical single camshaft.

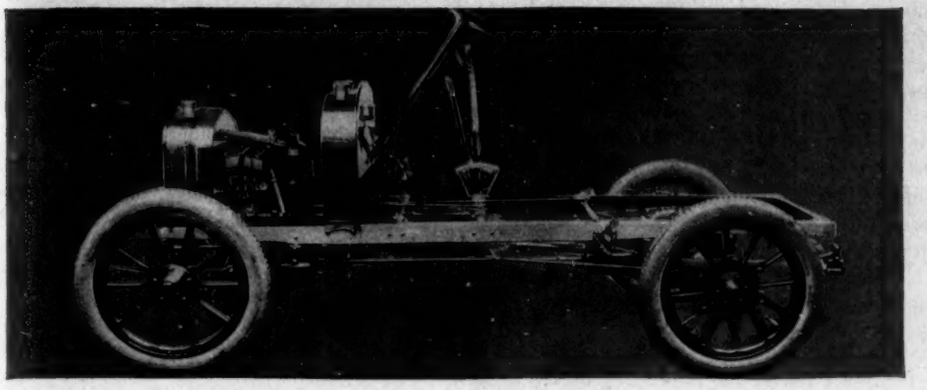
Magneto ignition here, as in the London show, evidences a superiority over the older accumulator, which indicates that the insulation troubles that have been worrying the high-tension magneto user are being overcome. Synchronization through a single coil, however, is not general, the high tension distributor still failing to convince driving experts of its equality with the separate coil for each cylinder. One notices more low-tension magnetos than were to be seen at the London show, but, like there, every designer seems to have been impressed with the necessity to provide easy detachment of the magneto. This may be all right where constant supervision is exercised, but a careless driver or two or a faulty fireing and the fashion will quickly be decried.

Clutches are very much as they were. Some firms have superseded the leather-faced cone with one of all metal running in oil, but the plate variety has not gone any further. The expanding type seems to have been taken up a little more, while one or two contracting band clutches are also on view—notably on the new Mors.

In transmission there is little that is either novel or new. Certainly the Antoinette oil pressure transmission is novel, but nobody seems disposed to accept it as a practicable device. In this the motor drives an oil pump capable of forcing it at a pressure of 2½ tons to the square inch to two rotary pumps situated where the differential gear ordinarily is. Each pump drives one of the rear wheels on the turbine principle. Thus the entire control of the car is limited to a supply of oil to these pumps—more oil more speed, less oil less speed, no oil—brakes. It is very simple if and when it works, otherwise. Last year the Pilain direct drive on three speeds was the chief nov-



CHASSIS OF THE ONE-CYLINDER ALCYON



ONE-CYLINDER DELAGE CHASSIS

elty in its way. It is now reduced to a direct drive on the third and fourth only, but the new Bozier four-speed gear is rather more taking and is certain to attract considerable attention. It consists of a set of three gears built concentrically in one piece and mounted to slide to the end of a squared driving shaft. An internally-toothed driver is attached to the corresponding end of the driven shaft and into it is slid the three gears to engage the one selected. The reverse pinion is mounted inside the internal toothed drum on a short sliding shaft that carries the striker fork. Both this shaft and the drum are operated from opposite ends of the gearbox through bell crank levers connecting them with the usual transverse rocking shaft above. The fourth speed is obtained direct through dog clutches formed on the end of the sliding gears and the center of the drum, respectively, by sliding the gears back to their limit of movement. The reverse movement is at the other end. When the gears are moved forward the short striker shaft draws the reverse pinion into engagement with the first speed gear and the toothed ring in the drum, thus reversing the shaft motion. The whole is contained in an oil-tight drum, and, granting its strength, should find a vogue for voiturettes at least, as an incased gear is not possible.

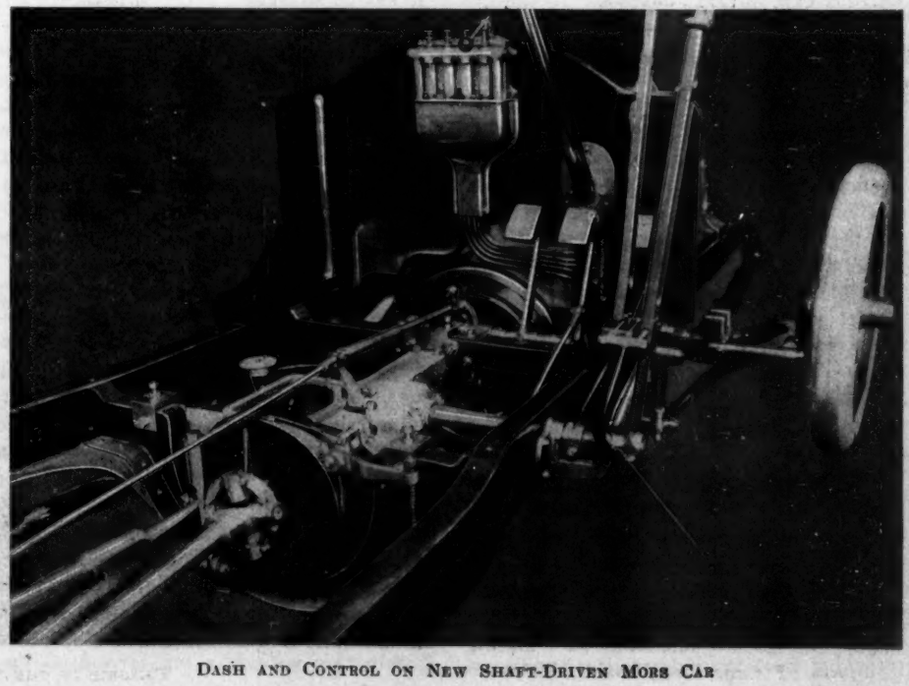
Among all the small cars in the salon—and there are a considerable number lost in the great preponderance of the high-priced car—none attracts more attention than the four-cylinder Gregoire, in which the most accepted French practice is duplicated with fine effect so far as appearance goes. Its chassis price is medium and its power 10-horsepower. Its wheelbase is only 96 inches, but a side entrance body is fitted just the same.

The show chassis of the 25-horsepower Delahaye is one of the most exquisitely finished in the salon, everything being finished in lavender and bright metal. The distinguishing mechanical features are the rocking action given the gate change-speed lever, which rocks on a pivot in order to engage with the selection bars of the gearbox, and also the leather-faced cone clutch. In this the leather face is clipped to the male cone by nut-tightened hooks buried into recesses in the cone, instead of being rivetted, as is usually the case. Four pedals are provided, one being the accelerator, another a half-compression release. Both clutch and flywheel have vanes, and the exhaust is water cooled.

The 75-horsepower six-cylinder Fiat is chiefly remarkable for its seventh cylinder—an air compressor set in front of the engine and with a piston driven off the crankshaft. When the engine has been once started this compresses air to a 75-pound per square inch pressure and delivers it to a cylinder behind and below the dashboard. Each cylinder has a supplementary valve operated from the exhaust camshaft and having a common supply pipe leading from the compressed air cylinder. A lever on the dashboard operates an admission valve, and the air feeding the suitably situated piston forces it downwards, when the others take up the impulse until gas being taken on by one and fired, the engine runs through its cycle in the usual way.

The new 28-horsepower de Dion has several novel features. The pedal brake motion also closes the carbureter throttle. The gear change has a straight run through action, but with automatic-locking control, a selector trigger taking the first and second speeds when the key runs above the gear quadrant and the third and fourth when it runs beneath it. A special form of plate clutch is also adopted, the driven shaft carrying a single plate, which is gripped between two disks on the flywheel. For the first time mechanically operated induction valves are adopted. The extra hand-controlled air inlet now recognized as so essential to the automatic type of carbureter, is worked by a knurled nut below the steering wheel on the steering pillow. The distributor for the high tension current from the magneto on the opposite side of engine is worked by a vertical shaft from the camshaft, the lower end operating a pinion-gear oil pump, feeding the engine through an indicator on the dashboard. The new Mors is a gear-driven design 15-horsepower car and with all four cylinders in one casting, having one entire side devoted to an inspection plate. Barring a little crowding of pipes and ignition leads—all housed in brass tubing—it is a very pretty design, specially considered as to easy attachment and detachment, even the magneto being disconnectable by undoing a single butterfly nut. The clutch is a novelty in a way, for there are very few band clutches, and there is one operated by a domed cone sliding in the clutch shaft operating two bell crank levers. The clutch band is of spring steel lined with cast steel sections. The auxiliary hand oil pump on the dashboard is new and novel.

The C. G. V. concern is showing a complete armored chassis for war purposes, such as supplied recently to the various continental governments. Chenard & Walcker are showing several neatly de-



DASH AND CONTROL ON NEW SHAFT-DRIVEN MORS CAR

signed town vehicles, mostly with four-cylinder motors, and specially intended for service as motor cabs. Their double chassis, in which the motor is suspended on an inner chassis extending back to the differential, is well conceived. The body rests on the outer chassis.

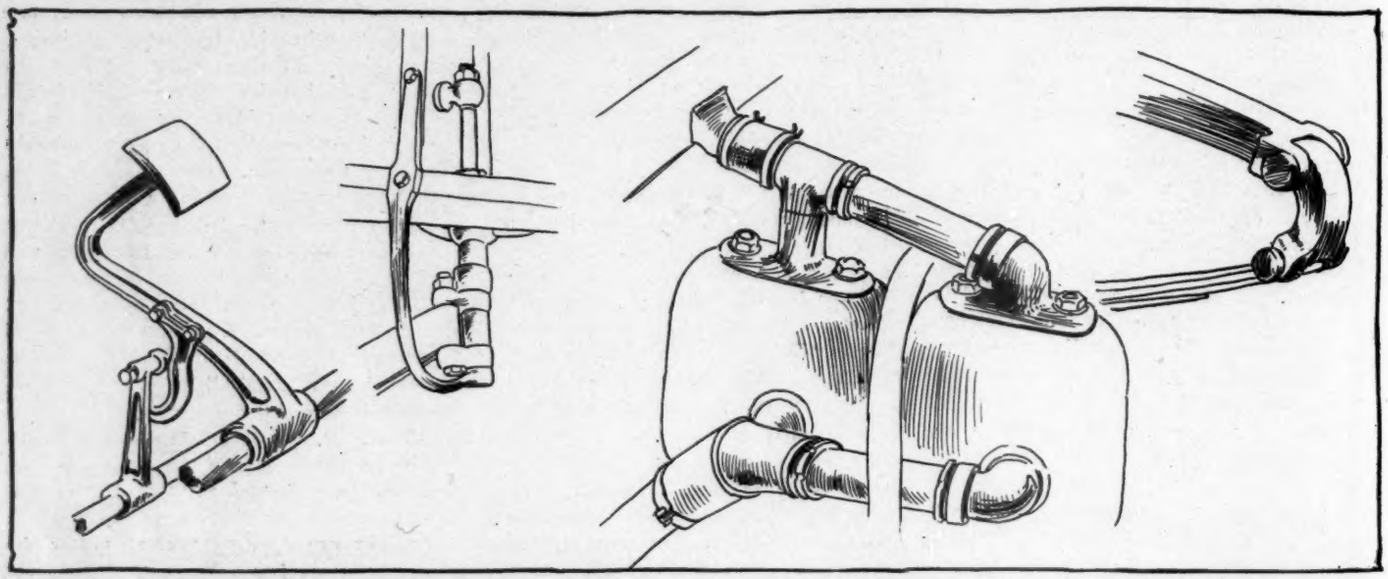
The Bolide company is showing a six-cylinder model. The Valkyrie four-cylinder 10-12-horsepower car has a pressed steel and reinforced wood frame, cylinders cast in pairs, 3⅔-inch bore, 3⅝-inch stroke, ball-bearing speed-changing device, and three speeds and reverse action. The chassis has a frame formed of half tubes, said to be one-piece. The de Dion stand has four models. The 8-horsepower runabout is excellent value, with its automatic oiling and controlled inlet valve, two novelties of the show for such small outputs. Among the six-cylinder cars are the La Buire and the Hotchkiss. The motor shaft in the latter is mounted on ball bearings and the motor group is extremely accessible and simple in appearance. The extremities of the rear axle are formed of two semi-cylindrical steel sections on which the wheels are mounted.

The splendid exhibition made this year by the industrial vehicles in the frame building erected on the Esplanade des Invalides proves to the outsider that the French are making immense progress along the lines of commercial application. Many of the exhibits this year were not in former shows, and the building itself is full of interesting rigs. The machines show to much greater advantage than in the Serres de la Ville de Paris. The space covered by the temporary building is about equal in size to the recent Berlin show for all classes of cars, and almost if not quite as large as the recent Olympia show in London. Yet there is not much space lost in the inside. The nine vehicles returning from the industrial and military Paris-Marseilles-Paris test are shown. Among these victorious ones are the three Darracq-Serpollets, one de Dion, two Orions, a Berliet, Peugeot, a Mors and a de Dion. Several makes show motor omnibuses, including La Buire, Purrey & Darracq steam omnibuses, not to mention the Brillies. The composite car called Avant Train Latil is shown in several examples, the motor being mounted in front of the fore axle, the remainder of the car being like a reinforced horse vehicle. A biscuit-maker's car is also shown.

Not a few of the interesting details noted in a brief tour of the spaces are de Dion front spring shackles of the forged type, instead of the link variety. The forward end of the frame terminates in a yoke end, within which is pivoted the top of the semi-circular shackle, while the bottom of this shackle is yoked to embrace the spring end. The construction gives an easier effect than that of the link type. The Renault thermo-siphon cooling system, used on all of its cars, is conspicuous by the large diameter of and the exceedingly short piping used, the intake pipe connecting from the base of the radiator which is carried back of the motor, to the right side of the jacket and the return pipe forming a union between the top of the jacket to the center top of the radiator.

Strength is added to the rear spring bracket of the Spiker car by the use of a curved brake arm riveted to the top piece of the frame and the frame cross piece and extending outward above the spring bracket and curving downward to the end of this bracket, forming, in short, an upper bridge support for the outer end of the bracket. A neat feature on the Aster pedal is a pair of adjusting screws by which the angle at which the pedal normally rests may be varied by loosening one screw and correspondingly tightening the other. This is accomplished by a yoke bracket on the pedal shaft. Within this yoke is a lug carried on the pedal, the two set screws bearing respectively on the fore and aft side of this lug. Another novelty on the Spiker car is the contracting brake on the rear of the transmission shaft, which band is restricted by the use of a double worm shaft, the worms on this shaft engaging with the lugs on each end of the clamping band of the brake.

The Mors lubricator carried on the back has incorporated with it a plunger pump for forcing oil directly to the crankcase. The novelty in this pump is the rocker arm with one end attached to the top of the pump plunger and the other carrying a large ball end, which greatly assists in the operation of the pump. On the de Dion-Bouton cars is fitted a particularly neat interconnection by which the motor is throttled when the clutch is disengaged. Paralleling the shaft carrying the clutch pedal is another shaft with connection to the motor throttle. On the clutch pedal is a spur-shaped cam piece adapted to contact with a roller on a vertical arm on the shaft with connection to the throttle. This cam can be set at various angles so that its action on the throttle is varied.



De Dion Clutch Speed Control — Spyker Rear Spring Shackle — Renault Water Piping — De Dion Spring Shackle

In a stand-to-stand resume of the myriad exhibits of the salon, the most disinterested observer cannot but be impressed with the mammoth proportions the industry has attained in France as well as in other nations like Germany, Italy, England, Belgium and America, and also with the accuracy of workmanship and the finish imparted to all parts of the motor car. A desultory review of these stands serves as a fairly accurate thermometer of the year's progress by the many makers, telling in unmistakable words the success or failure that marks the footsteps from week to week and month to month of the builders. In the twelve-month elapsed since the 1905 salon builders of small cars have turned their attention to the building of large cars, builders of large cars, in not a few cases,

have taken up the problem of light car construction and both of these classes have entered with considerable zest into the production of commercial machines, supplemented, in not a few cases, with the building of motor boats and canoes. Coupled with this diversity of attention is that of several models built by the same concern. The Gillett-Forest exhibits four sizes of motors, 12, 14-16, 25-32, 35-50-horsepower, shown on as many different sizes of cars, and through this line many of the tendencies of the season, like double ignition from high-tension magneto and battery, automatic carbureter in place of the many-control type, selective transmission giving either three or four speeds ahead with direct drive generally on the fourth speed, final transmission by cardan shaft, irreversible steering gears, interior and exterior brakes on the rear wheel hubs and ball bearings in the transmission, back axle and front road wheels, with practically all bearing parts carried on these bearings save the motor shaft and the camshafts. Motors in all models are of the four-cylinder type fitted with mechanical valves and the clutch used on the model is of the progressive engagement style.

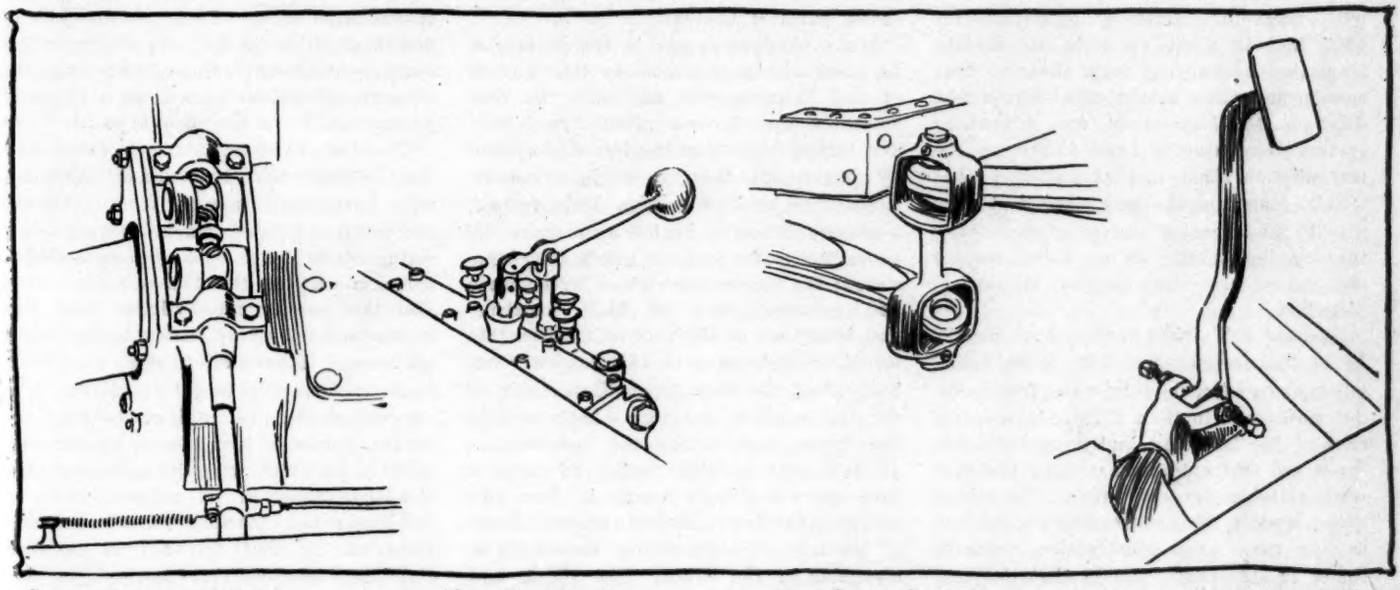
Ader cars reveal a few innovations, one being the dispensing with lateral arms on the motor base for carrying it on the car frame and the adoption of a web suppport, achieved by extending the crankcase laterally until it reaches the side pieces of the car frame, to which it is rigidly bolted throughout its length. On this motor base rests the high-tension magneto, the automatic carbureter and the pump for the water circulation, and when demanded the lubricator shares this base with the other three. Also unexpected in this car is the option afforded the purchaser of using either shaft or chain drive, the maker offering to fit the car with cardan shaft or side chains, as the buyer desires. Still another option is the use of a platform spring suspension in rear or side semi-elliptic springs. Ader cars are representative in that the clutch and throttle carry that interconnection by which disengagement cuts down the motor speed and re-engagement raises the speed of the crankshaft to its present mark. A double ignition system is recommended, though not fitted, the magneto being installed but a battery system for reserve being suggested.

One exponent of friction drive still continues in France, the Fouillaron with its belt and variable pulley transmission. The crankshaft extended well to the rear, practically amidship, carries an expansible pulley with a V rim and on a parallel shaft is a similar pulley. Over these pulleys passes a V-cross section leather belt and from the second shaft connection is made with the back axle by a cardan propeller. In obtaining variations of speed the diameter of the pulley on the continued crankshaft is increased or diminished, while the diameter of the other pulley is oppositely altered, thus allowing the same length of belt to serve in the driving and yet giving any variation desired.

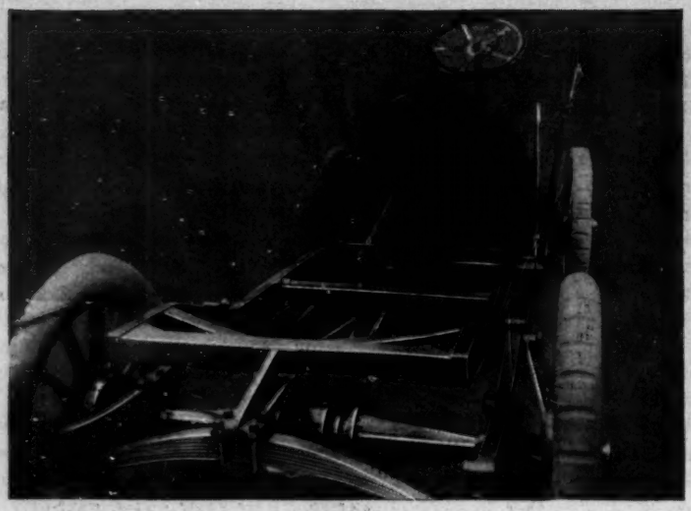
Few cars better illustrate the French tendencies in small car building than the Passe-Partout, a mono-cylinder car of 8-horsepower with the classic style of cone clutch, variations in speed achieved through a type of "train baladeur" giving three speeds forward with the drive direct on the third speed, and shaft connection between this gearset and the back axle. The motor, very Frenchy, is carried vertically in front with its mechanical valves in a port at the forward side and actuated from one camshaft. The flywheel is enclosed and on the continuation of the crankshaft is the cup and cone for the clutch. Single ignition by Gianoli coil, cooling by thermo-syphon with a small water tank connected with the radiator and carried above it, braking through the differential and on the back wheels, the reputable I-beam axle in front, control of ignition and the carbureter from the "mannettes" on the steering wheel, and "Tole emboutie," pressed steel, constituting the frame, are all unmistakable high water marks on this little machine.

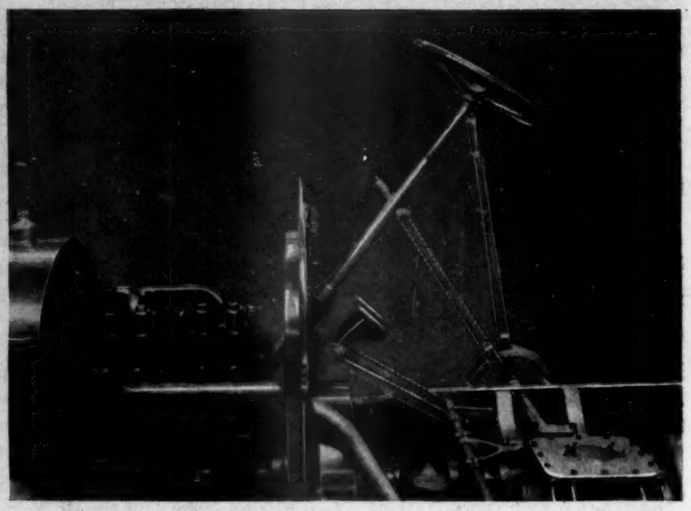
Besides the many makers solely engaged in small-car making, like the Passe-Partout concern, there are several big car builders who have their little fellows. In this classification comes the Peugeot with its Lion-Peugeot baby, or voiturette. It is also a mono-cylinder vehicle with a modest rating of 6 horsepower, yet it incorporates in its tiny makeup mechanical valves opened by one camshaft driven off the crankshaft by skew gears, gear-driven lubricator for the motor and transmission gears, ignition by magneto or accumulators, as desired, and like its many big brothers, changes in speed through a pretentious three-speed set with connection to the rear axle by double side chain. There are three pedals to share their labors as follows: One operating the brake on the jackshaft, a second withdrawing the clutch and also reducing the speed of the motor and the third fitted with connections to the throttle valve, its duties being that of an "accelerateur."

No French firm of international standing offers a wider variety of cars to select from than the house of Darracq, beginning with the baby runabout with its 7 to 9-horsepower mono-cylinder motor and passing by easy stages to the 8 to 10 horsepower runabout with a two-cylinder motor, then to the 10 to 12 horsepower two-cylinder touring car, next to the 16 to 18-horsepower four-cylinder car, and followed by the 20 to 28-horsepower and the 30 to 40, both with four-cylinder motors. As much variety is offered in these cars by way of ignition, the battery and coil sufficing in its smaller models, but replaced by a double system of coil and



SPYKER CONTRACTING BRAKE MORS HAND OIL PUMP MORS SPRING SHACKLE ASTER CLUTCH PEDAL





DASH, DRIVING CONTROL, FRAME AND VALVE SIDE OF MOTOR ON 15-HORSEPOWER GREGOIRE CAR

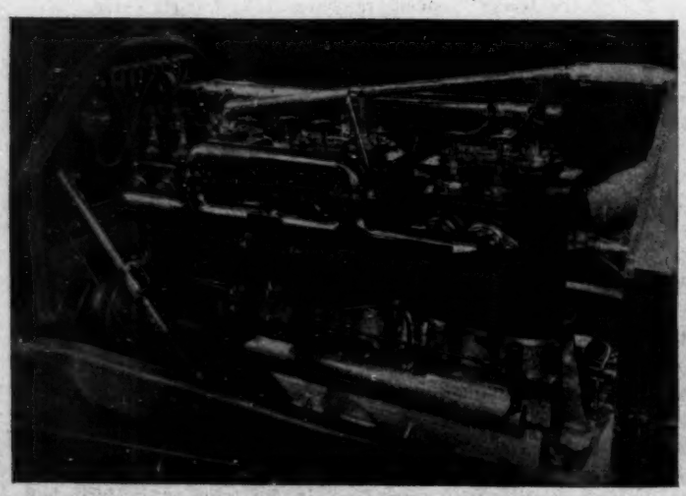
battery with low tension magneto for reserve in the higher powered cars. In one model two high tension systems are installed, one with battery and the other with magneto. Darracq principles for 1907 include shaft drive in all models, transmissions varying from three to four speeds, according to the cars, with direct drive on the high speed, and a braking system combining a band brake on the transmission shaft and expanding brakes within drums on the rear wheels. In the 8 to 10 model motor control is by varying the opening of the intake valve, but in the other cars this method is not resorted to.

Chenard & Walcker in their four models, 14 to 16 horsepower and 30 to 40 horsepower, two of each, retain the four-cylinder motor and in their 8 to 10-horsepower cars of the landaulet and double phaeton types use two cylinders, making the cars very suitable for city work. In all of these models the shaft drive combines in its rear axle construction features found in side chain cars in that the rear axle combines a stationary portion in the form of a steel axle dropped centrally in which bed rests the differential. The entire weight of the car is supported on the stationary part of the axle, leaving the shafts free for propelling the machine. A slight change in the oiling system includes the use of one pump driven by the motor and automatically forcing the oil to all parts of the car.

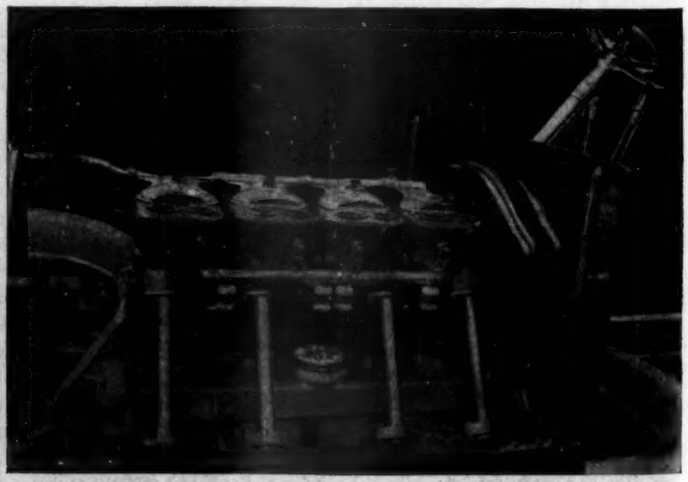
Many changes appear in the Mors outfit, chief among which is the introduction of the 10-horsepower car with the four cylinders cast in one piece "en bloc," and having valves on the left side opened by direct lift from a single camshaft. Ignition is by high tension Mors system, a novelty in itself; flexible connection between the motor and the gearbox by cone clutch; the transmission gives three speeds and reverse. New in Mors construction is the use of shaft drive, used on this model, as well as on a 15-horsepower car built along the same lines. Braking is on the transmission and rear wheels and in the frame construction the concern has adopted that popular method of using a three-quarter elliptic spring in rear and dropping the frame several inches in front of the rear axle, as well as narrowing it alongside of the motor. The 17, 28 and 45-horsepower cars have cylinders cast in pairs, use low tension ignition and chain drive. The new six-cylinder car, rated at 50-horsepower and with cylinders cast in pairs, has the valves carried on opposite sides and uses low-tension ignition supplemented by a high tension outfit. A new form of metallic clutch is installed, the transmission affords four forward speeds with direct drive on the fourth, and final drive is by side chains. The company exhibits its line of 28-horsepower commercial vehicles as well as a 17-horsepower machine of the same type.

The Bayard line, a most exhaustive one, includes four two-cylinder machines with horsepower ranging from 8 to 12; and ten four-cylinder machines with motor ratings from 10 to 60-horsepower. Shaft drive is used in the two-cylinder styles, also the smaller four-cylinder cars, but is superseded by side chains in the larger machines. Transmission sets vary from three to four speeds, all operating on a selective basis. In addition to this line in the "annexe invalides," where commercial machines were on exhibition, the company displayed its complete line of omnibuses and "camion," truck, vehicles. These of the shaft-driven type use disk clutches, four-speed transmissions, and are provided with a very competent braking system. With the exception of the truck the two-cylinder motor is made use of.

Bolide motor cars shown in limousine, landaulet, and other city types are made



SIX-CYLINDER 40-HORSEPOWER VINOT-DEGUINGAND



VALVE SIDE 28-HORSEPOWER DE DION MOTOR

NEW 15-HORSEPOWER MORS MOTOR, WITH FOUR CYLINDERS IN ONE CASTING AND LARGE INSPECTION PLATE

in six chassis sizes with two, four and six-cylinder motors, all of the vertical type. The company still adheres to the rear platform spring construction in four of the types: uses Simms-Bosch, high-tension ignition throughout; varies the drive through a three or four-speed transmission carried on ball bearings and uses the cone clutch in smaller models, but the disk in the larger sizes. Shaft drive is used throughout.

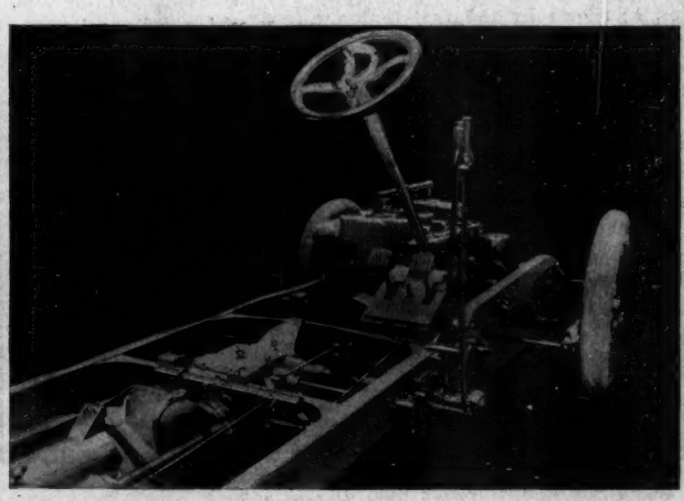
Unic cars, the product of Georges Richard, recently of the house of Brasier, are in two and four-cylinder sizes, the former with the vertical cylinders "en bloc" in front, with ignition by make-and-break, a novelty on cars of this size with a rating of 10 to 12-horsepower. Incorporated in the machine are a nickel steel frame construction, a cone clutch, selective transmission and shaft drive, the latter featured by the use of a specially strong rear axle construction with a differential housing exceptionally webbed and reinforced by a heavy under truss rod. Specialized in this axle is the very broad metal to metal expanding brakes. The four-cylinder types rates at 14 to 16-horsepower have the cylinders in pairs, with valves opposite, half-time gears entirely enclosed, and crankcase cast in one piece with end plates for supporting the crankshaft bearings. Make-and-break system of ignition is fitted and the French method of holding the caps in the valve ports by yoke is made use of. Commendable in this chassis is the use of a particularly neat form of dust apron formed with easy under curves with the object of reducing dust as much as possible. A novelty with the motor is the carrying of the magneto in an inverted position and clutching it to its drive shaft in such a manner that its removal may be affected in less than a minute's time.

Germany has good representation in addition to the Mercedes in the Benz cars in 18, 40 and 50-horsepower machines, all featured by simplicity of detail, one of which is the holding of the inlet caps in position by a single bridge piece very readily removed. Double ignition is fitted with make-and-break for regular use; and in the automatic carbureter the float can be depressed for flooding by pulling a wire from the dash. Underneath the float chamber is a water drain with attached cap for cutting off the gasoline supply when desired to drain the water out. Drive is by shaft, and a change for the better, in the brake system, is the decided increase in the width of the brake wheel and the use of a clamping band formed of segments of metal supported on a steel band.

Isotta-Fraschini cars sharing an Italian reputation with such makes as Fiat, Itala and Zust, are shown in a variety of chassis with motors varying from 28 to 120-horsepower, the latter being the monster racing machine. In all of these approved Italian construction is evidenced by cylinders cast in pairs with valves on opposite sides, high-tension magneto ignition, disk clutch, four-speed selective transmission and chain drive. Specialized in the chassis are the powerful water-cooled brakes used on the jackshaft and also one on one of the shafts on the transmission, as well as other brakes expanding within the hubs of the rear wheels.

In addition to its exhibit of commercial machines and omnibuses in the "Annexe Invalides," the De Dion Bouton company presents its complete and exhaustive line of touring cars, beginning with the 8-horsepower voiturette with its single cylinder motor carried vertically in front and mounted on the tubular chassis frame, a construction also followed in a four-passenger vehicle of the same motor power. Both of these cars make use of a three-speed transmission and shaft drive.

FRONT VIEW, RADIATOR REMOVED



THE 25-HORSEPOWER DELAHAYE

DRIVING GEAR AND CONTROL LEVERS

N.H.Van Sicklen, Manager

MOTOR AGE

Charles P. Root, Editor

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M. CHARLEY'S DENIAL

STATEMENTS credited to C. L. Charley to the effect that continental makers of motor cars had about lost their trade in the British Isles are now claimed to have been misinterpreted—or else Mr. Charley has been hauled up and told he has made a mistake in handling the truth too freely. It is not beyond a possibility that the former is the correct version of the affair, but regardless of what Mr. Charley may have said or what he may have meant there is more truth in the statement credited to him than most continental makers care to admit at the present time. It is a purely business affair to deny that the continental makers have been losing ground to the British makers, but such a state of affairs is only the natural outcome of events. Is it to be supposed the British makers are to forever remain in the background and never reach the zenith of their ambition? Everything that has transpired in the past year, and particularly in the past few months, bears out the assertion made that the British makers are rapidly overhauling the continental makers in all ways, even if they have not already pulled up to an even basis. The mechanical eye has noticed British improvements and has failed to see wherein continental makers have gone ahead with gigantic strides; it has seen the best French construction met and in many cases surpassed; it has seen the French makers exhibit deep concern over the possibility of the loss of trade in the British Isles, as shown by the fact that for the first time in the history of the industry the actual cars designed for the Paris salon were exhibited at Olympia. Does not all this bear out the truth of the statements credited to Mr. Charley, whether he made them or not? Continental makers are still finding a market in both the British Isles and America and they will continue to find a market in these places, but it cannot be denied that these markets are rapidly being closed to them. It is but a natural outcome, for why should Englishmen and Americans go to the continent to buy motor cars if they can procure just as good vehicles at home? The argument will be advanced that neither English nor American makers have yet reached French standard, thus the excuse for buying abroad. This idea, however, is rapidly being dissipated—it is an exploded notion, but some people did not hear the explosion. There are ample markets for continental makers outside of the British Isles and America, markets that will not be entered by either the British or American makers until the home demand is supplied, and from present indications that time is several years away.

SANE MOTORING

PROBABLY no man has had more motoring experience than Charles Jarrott, well known abroad in the racing field and in the trade, and what he might say regarding motor car driving ought to have considerable weight, not only with beginners, but with those whose experience has been extended over many years in handling road vehicles. Mr. Jarrott may have at some time in his life been saturated with speed microbes, but the constant exercise of will power has been responsible for driving them out of his system if such happened to be the case. Mr. Jarrott has just written a book of experiences that is interesting and instructive. It is particularly so to the motorist who is not sufficiently aged to appreciate what are and what are not the extreme pleasures of the pastime. It takes a number of years for the speed mania to wear off. There is much to be remembered in one of Mr. Jarrott's paragraphs—by all classes and all ages of drivers: "There is no art in rushing at top speed up to another vehicle and then smashing on the brakes to avoid a collision. There is no art in cutting in between an autobus and a street refuge with the thickness of a coat of paint to spare on each side. There is no art in swinging through traffic anywhere and everywhere at full speed or traveling round a corner at the utmost limit of speed at which it is possible to negotiate the corner at all. It is all easily accomplished, but it must always be remembered that it is the pitcher who goes to the well most often who usually gets broken, and it is the driver, expert or otherwise, who takes the most risks who most frequently comes to grief. Good steering it may be, but the proper handling of a machine involves much more than the mere direction of its course." It will take more than speed laws and speed traps to convince motorists that all Mr. Jarrott says is true—that pleasure in motoring can be attained without resorting to recklessness. Time and experience, with possibly a few horrible examples thrown in, will be required to adjust such matters. Then, as the number of sane motorists increases, possibly—just possibly—the daredevil will see that he is in the minority and will have sense enough to calm down and become one of the clan in all the word motorist implies. But he will withstand a lot of educating, for his hide is thick and tough.

FOOLISH ROAD IDEAS

NOW it is proposed to establish a road from Boston to Atlanta, Ga. The idea would not be bad if it could be carried out, but inasmuch as it cannot be carried out it is absolutely silly. Attempts have been made to construct trunk lines of highways but have proved failures. A few interested people have been building a roadway of this character from New York to Chicago for the past decade and not more than a few miles of the road have been completed. To attempt to build a road from Boston to Atlanta means considerable expense and will unquestionably lack the support not only of state governments but of the federal government, and, therefore, while there will be considerable talk, considerable newspaper comment, and considerable boosting, it will be three or four decades before such an affair will be a reality. The people of the Pacific coast are also becoming enthusiastic over the question of roads and if all the schemes outlined were to be put into effect there would be one great highway from Puget sound on the north to Los Angeles on the south. If somebody will only lay out a plan to have a road from Los Angeles to New Orleans and from New Orleans to Atlanta, and then if somebody will continue the dream to make a road from New York to Chicago and then to San Francisco, the whole question of roads will have been solved. About the time all this has been hashed over in the newspapers the dreamers will probably awaken.

Motor Age Wishes All a
Merry Christmas and a Happy New Year

NEW DUST FOE FOUND

French Remedy in Shape of Sea Salt and Water Is Brought to Government's Attention

Washington, D. C., Dec. 14—The attention of the government road authorities has been called to a new dust remedy in the shape of sea salt and sea water. The problem of combating road dust has attracted much attention of late. The Medical Society of Bordeaux, France, now comes to the front and tells of the evils arising from this cause and the number and nature of diseases directly traceable thereto. Tar seems to have many advocates as a layer of dust, but its use has been found to have some disagreeable accompaniments. Sea salt and sea water have been proposed as cheaper and more effective remedies than tar. The idea of using sea salt seems to be based upon its well-known property, especially when in large grains, of absorbing the moisture of the atmosphere. It is this property, it is claimed, that will dampen the dust and thus prevent its dissemination. Dr. Carl, an eminent chemist of Bordeaux, exploits the merits of sea water. He mentions the fact that when salt extracted from sea water becomes damp it is because of the impurities it contains—pure salt not being hygroscopic—carbonate of magnesium and calcium being the principal impurities which provoke liquefaction. It has been suggested that these salts might be put into the ordinary water used for sprinkling the roads. As prepared in the laboratory, however, or as found in residum in the factory, carbonate of magnesium and calcium have a market value which would make their general use very expensive. Dr. Carl points out that these salts abound in sea water, from which, if evaporated in great shallow trays by the rays of the sun, the different salts crystallize in order of insolubility, chloride of sodium being the first to separate, while the others, more soluble, accumulate in the remaining water. A few quarts of this mother sea water, having no value, mixed with a ton of ordinary water, it is declared, will be found most efficacious in laying the dust and preventing its dissemination. The expense would seem to be trifling. No disagreeable odors would offend the nostrils and no deleterious effects follow its use. In American cities not far from the sea, such as New York, Boston, Philadelphia, New Orleans and San Francisco, the method advocated by Dr. Carl might be found both inexpensive and beneficial. Still no attempt has as yet been made in this country, so far as is known, to experiment along these lines. Good roads agitators have before them many such projects and while the idea may be an excellent one, they are so busy looking into the merits of other schemes that they have not tackled this latest one.

JAMESTOWN EXPOSITION ROUTE

Norfolk, Va., Dec. 15—The route which it is proposed that the Glidden tour shall follow next year, as outlined by Augustus Post, who recently made the trip over the famous battle fields of Virginia, has been made public by the Jamestown exposition people. One noticeable thing is that the roads are dirt highways with the exception of a stone stretch between Richmond and Petersburg. As proposed by Post, the tour will start in Washington, D. C., going to Hagerstown, 71 miles, the first day, passing through Dupont Circle, Montrose, Rockville, Gaithersville, Clarksburg, Hyattstown, Frederick, Braddock's Springs, Braddock Heights, Middletown, Boonsborough and Funkstown; from Hagerstown to Winchester, to Staunton, 151.3 miles, the second day, through Mappans, Dilghenington, the battle field of Antietam, Sharpsburg, Antietam Station, Shepard's Town, Hall Town, Charlestown, Gaylord, Berryville, Winchester, Kernstown and minor towns; Staunton to Richmond, the third day, 118.6 miles; Richmond to Norfolk, 119.6 miles, the fourth day. From Norfolk a side trip is proposed —to Virginia Beach, 21.2 miles, and back, 21.5 miles; thence to Washington through Richmond and Fredericksburg, 3 days being set aside for this.

PROPOSED ROUTE FOR THE 1907 GLIDDEN TOUR

ADOPT RULES OF ROAD

Chicago Starts to Educate Drivers On How To Handle Vehicles on Down Town Streets

Chicago, Dec. 7—Efforts on the part of local motorists to regulate the street traffic of Chicago and to educate the drivers of horse-drawn vehicles on the rules of the road are at last bearing fruit, the city council having passed an ordinance which is just being put into force by Chief of Police Collins. Of course the police are having trouble at first with the new laws, but they have faith in them and believe that as soon as the drivers realize that the ordinance is for their good they will endeavor to heed the mandates of the measure. The new rules are perhaps not quite so complete as those in New York, but then it is pointed out that the conditions here are different. For instance, in New York vehicles are not allowed to cross from one side of a street to another, being compelled to proceed to the next cross street, keeping to the right of the curb, turning around at right angles so as to approach from the right the place they want to stop. This is because there are no alleys in Gotham, but it is pointed out that if Chicago made any attempt to enforce such a rule in the downtown streets it would greatly increase the congestion inside the loop.

Attempts were made Saturday to put the rules into force in the down town district, the police paying particular stress to the clause ordering all vehicles to keep to the right and not to stop with the left side to the curb. It took only a little education to convince the majority of the drivers that this rule must be obeyed and as a result there was a marked improvement in the way the traffic was handled. There were just two disputes over this and Uncle Sam was one to raise a holler. It seems that the collectors of mail cannot comply with this rule without losing valuable time, as the mail boxes are situated first on one side and then on the other of the street. A collector is given 2 minutes to the block, and unless he can zigzag from side to side he cannot make it. At first the police refused to permit this, but the superintendent of city delivery called on Chief Collins and convinced him there would have to be an exception made in the case of the men in gray. Cab drivers, too, raised an outcry and a delegation called on the city officials to protest, claiming that the rule was inhuman in

case of a storm when the horses at cab stands were compelled to face it. But the city officials refused to take cognizance of this kick and in case of a storm the cabbies will have to seek shelter.

Among other points in the new ordinance it is unlawful to refuse to stop a motor car or other motor vehicle on signal from a driver whose horse is frightened; to drive or back vehicles on a sidewalk or stop so as to obstruct any sidewalk or passage or placing a wagon across a street to unload it; to permit vehicles to stand with the back to the curb unless they are in actual process of loading or unloading; to employ drivers under 16 years of age, and to drive any vehicle on car tracks unless all four wheels are inside the space between the rails.

Another provision is that no vehicle shall stop, except in case of accident or other emergency, or when directed to stop by the police, in such a way as to obstruct any street crossing, or within 5 feet of any crossing. Vehicles are ordered to keep as close to the right-hand curb as safety and prudence will permit, except when overtaking and passing another vehicle, and except when running within the car tracks. An overtaken vehicle must at all times be passed on its left side. It is ordered that traffic must not be blocked, and further provision is made whereby vehicles, when turning corners to the right, must be kept inside the center of the street. When turning corners to the left drivers must pass to the right of the central point of the street intersection. The penalty for a violation of any of these rules is not less than $5 and not more than $50 each each offense. The clause referring to traveling with only one set of wheels on the rail is something that needs enforcing, as it has been the general practice with the drivers to go along with one set of wheels on the rail and the other on the street paving, thus wearing deep ruts, which in time ruin the pavement, especially if it is asphalt. Of course this does not make so much difference in belgian blocks.

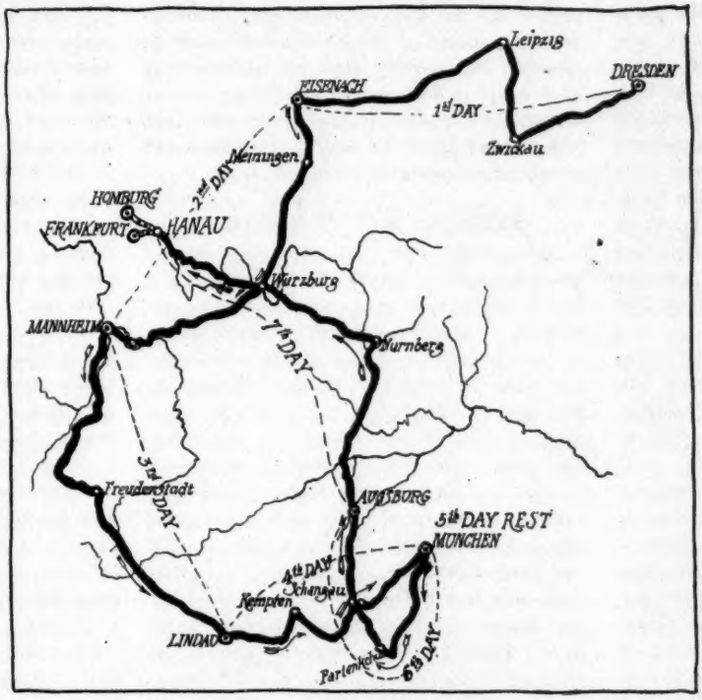
MAY SEND LYTLE ABROAD

Boston, Mass., Dec. 17—Colonel A. A. Pope is living quietly in Boston now, but he keeps in close touch with affairs of the company. He has been in consultation with the engineers at the Hartford factory as to the advisability of sending Herbert Lytle to Europe next summer to compete in the grand prix and the Emperor William's cup race with the big Pope-Toledo built for the last Vanderbilt race.

SEES CHANCE FOR ALL

Expert Believes Small Co-operative Distillers Will Manufacture Denatured Alcohol

Washington, D. C., Dec. 14—The annual report of the commissioner of internal revenue contains some reference to the free alcohol bill enacted at the last session of congress and which becomes a law January 1. The commissioner says it is confidently believed that great benefit will be derived by the people at large from this legislation, and few public measures have ever received in the congress such hearty and unanimous support. The alcohol will be produced at distilleries under governmental supervision, as heretofore, but it is thought most probable that, instead of this production being, as now, confined to large distilleries, within the course of a brief period small coöperative distilleries will be constructed throughout the country, operated under governmental supervision, but eventually producing alcohol at a cheaper price, and perhaps from cheaper substances than is the rule at present. The commissioner says there will be two classes of denatured alcohol—first that styled "completely denatured," which it is believed will pass into general use for general consumption and which can be purchased at retail or wholesale houses virtually without limiting regulations as against the private consumer, and, second, "specially denatured," in which materials demanded by the needs of manufacturing interests will be regarded and with such limitations on the use of this class of the product as will confine it to the special manufacturing purposes for which it is prepared. This specially denatured alcohol will be under strict surveillance and governmental supervision. The benefits of cheap alcohol to the people and industries of Great Britain, Germany, France and other countries are apparent to the most casual observer, he says, and these benefits become clearer, more interesting and decisive as a closer study of the subject is made. Foreign officials are following with broad interest the new conditions that will arise in this country by virtue of the passage of this law, and are considering its effects upon their own home industries.



ROUTE SELECTED FOR THE 1907 HERKOMER TOUR

TESTING REO HILL-CLIMBER

Lansing, Mich., Dec. 17—The Reo Motor Car Co. has adopted a unique plan of testing its cars as to hill-climbing abilities before sending them out. For this purpose a peculiar track has been constructed at the factory. From the ground in the rear of the factory a track 8 feet wide extends up over the outbuildings to a height of 22½ feet. The approach to the track proper has a 30 per cent rise, and all cars will be driven up this incline before being sent out. The track is of wood and is protected on each side by 18-inch railings to prevent any possibility of the car plunging to the ground. Starting at a point south of the cluster of buildings which make up the home of the Reo, the track rises to a point over the freight sidings and at its highest point turns and gradually descends over the coal sheds and other outbuildings to the outside testing track north of the main building. A turnout has been provided so that cars may pass on the elevated track. The total length of the track is 468 feet. In addition to this the Reo people have the usual small circular track on which all cars can be tested for speed before being sent to the agents to dispose of.

HERKOMER TOUR ROUTE

Berlin, Dec. 6—The route for the third annual Herkomer tour is laid out as follows: First day—Dresden, Chemnitz, Zwickau, Leipzic, Eisenach; second day—Eisenach, Meinengen, Heidelberg, Mannheim; third day—Mannheim, Karlsruhe over the Kniebis pass, through the Schwarzwald toward Freudenstadt, Tuttlingen and Lindau; fourth day—Linday, Immenstadt, Kempten, Fussen, Schongau, Weilheim, Starnburg, Munich; fifth day—Rest in Munich; sixth day—Kesselberg hill-climb, Partenkirchen, Schongau, Landsberg, Augsburg; seventh day—Augsburg, Donanworst, Monheim, Nurnberg, Neustadt, Wurzberg, Frankfort.

BID TO THE PRESIDENT

Theodore Roosevelt Asked by A. L. A. M. To Visit New York Motor Car Show

Washington, D. C., Dec. 15—One of the most interesting events that has taken place at the White House this season was the presentation this morning to President Roosevelt of a special invitation to be present at the motor car show at Madison Square garden on January 12 to 19. The occasion was notable for the reason that it was the first time in the history of motoring that the president of the United States was formally invited to attend a trade show. Promptly at 12 o'clock the invitation committee of the A. L. A. M., together with several members of the association and a number of distinguished men in public life, were ushered into the president's room. The invitation was presented to the president on behalf of the A. L. A. M. by George N. Pierce, of Buffalo. President Roosevelt expressed the greatest interest in the show and promised to let the invitation committee know at a later date whether he would be able to go or not. The announcement was made to the president that the show promoters would close the exhibition to all persons except the president and his party on any night he might consent to attend.

The invitations were magnificent creations of Tiffany, enclosed in several envelopes, the outer one being of leather, fastening with a clasp. Besides that to President Roosevelt, invitations were issued to the rulers and the ambassadors of the following nations: England, France, Germany, Italy, Japan, Austria, Mexico and Brazil. The invitations to the ambassadors and their sovereigns were delivered subsequently to that of the president by a special committee consisting of S. T. Davis, Jr., of the executive committee of the Association of Licensed Automobile Manufacturers; E. Rand Hollender, of the Importers' Automobile Salon, and Marcus I. Brock, assistant general manager of the Association of Licensed Automobile Manufacturers.

The A. L. A. M. committee gave a dinner last night at the New Willard to a number of prominent government officials and members of the press. The guest of honor was Leslie M. Shaw, secretary of the treasury, who made a notable speech. During the course of his remarks Mr. Shaw said: "We who pray should ask God to save us from any increased prosperity. We have all we can stand. We are growing more crops than we can harvest, and harvesting more than we can haul to market. I hope none of you gentlemen ever allows the inventor to become the business manager. I have been introduced as a man who can paper a wall or decorate a green house, but I am not going to live up to my reputation. But I want to sound a solemn warning. I am not sure of my figures, but someone has told me that $60,000,000 worth of motor cars were manufactured this year. I am a believer in the motor car and I think it has a wonderful future. I don't own one—I am one of the men who gets run over. But you gentlemen who are at the head of great things, who are helping to make the country, who are the constructive and business—do you ever stop to think? This country has grown as no other country in the world has grown. It is advancing by leaps and bounds. Within the last 10 years the country has jumped to an appalling stature. We are compelled to do business at a tenfold increase with the financial implements of a puling age compared with our present strength and capacity. I don't know what is going to become of us."

Colonel George Pope also made a short speech, as did General Humphrey, quartermaster general of the United States army. General Humphrey said he believes the motor car is destined to take the place of horses and mules in the army and that the use of them should be recommended to all army posts and academies.

STEVENS N. Y. M. C. CHIEF

New York, Dec. 15—At the annual meeting and election of the New York Motor Club on Thursday night, the organization changed somewhat in complexion by unanimously electing to the presidency the amateur racing enthusiast, Samuel B. Stevens Jr., lately of Rome, N. Y., but now of New York. Until now the club has been officerd by tradesmen and newspapermen. Robert Lee Morrell was the candidate for first vice president, but owing to his duties as a commissioner of the Jamestown, Va., exposition, he withdrew and this office will later be filled by the directors. The other officers elected were: Second vice-president, Frank J. Griffin; treasurer, Richard H. Johnston; secretary, A. B. Tucker; directors, W. J. P. Moore, R. G. Howell, W. J. Morgan and A. L. Kull. The club is prosperous.

RACING POPULAR WITH TRADE

New York, Dec. 15—The official announcement of the subjects discussed at the December meeting of the mechanical branch of the Association of Licensed Automobile Manufacturers, just made, indicate that it was an interesting session. The subject of racing cars came up and instead of merely approving of the action of those makers who have supported the big road races, such as the Vanderbilt cup, the general sentiment was expressed that it is the duty of all members of the industry to promote the sport and construct cars to defeat those of the foreign makers. It was agreed that in order to do this the manufacturers must complete their racers early enough to have time for sufficiently trying them out, in which respect they have been shy heretofore.

COLOR SCHEME LAID

Fifty Thousand Dollars Being Spent in New York in Preparing Garden for Show

New York, Dec. 19—The show committee of the Association of Licensed Automobile Manufacturers has had printed in colors a reproduction of the decorator's sketch showing what the interior of Madison Square garden will look like when ready for the cars to be put in for the show of January 12-19. It is a dazzling color scheme and the whole appears as if it might well cost more than $50,000. That it is worth all sorts of enthusiasm is evidently believed by the press agent, for this is what he says about it in the following description he sends out with the color prints:

"The coloring will be so vivid, varied and harmoniously distributed as to elude description in black and white, but some idea of the ensemble may be had by those who can picture in mind a palatial Swiss garden in the late fall, or early winter. Beneath an amber sky, spangled with pale, silvery stars that blink a good night to the sinking sun, all the mellow and flaming glories of autumnal foliage are playing hide and seek about rustic arbors, and the coloring is reflected upon pure white statuary and in plashing fountains; the green sward of the garden is delicately flecked in white by the first desultory flakes of a snow flurry, sent to tell of the approach of winter; in the perspective, on all sides, is Alpine scenery, with hamlets snuggling between snowy peaks, and mountain lakes gleaming in the lingering, refracted rays of the sunset hour.

"Overhead, the iron girders of the big show house will be concealed by a canopy of amber hue, studded with 37,000 silver stars. The whole floor will be covered with a specially woven green carpet, with white streaks and dots here and there to carry out the snow motif. The side walls of the main floor and platform will be concealed by paintings designed to perfect the illusion of an Alpine perspective, and at the Fourth avenue end will be a huge canvas, painted by well known creators of theatrical scenes and curtains. In front of the pillars that support the galleries, will be heroic statues on pedestals, eight on each side. One figure represents the 'Goddess of the Snow' and was designed by a German sculptor; another is a winged Mercury designed in Paris. These two figures are to be posed alternately along the sides. At either end of the band stand will be another heroic figure representing 'Triumph.' Near the Madison avenue entrance will be a great fountain, 20 feet across the base and 8 feet in height; it will have three basins and its several jets will be illumined by various colored lights. The spirit of the fountain is a nymph holding a dolphin

and on the rim of the bowl will be sea-children, pouring libations from water vessels held in their hands. On each side of the fountain will be allegorical statues of heroic size, and it will have a background of natural plants and foliage. This fountain is a piece of work worthy of permanency, for it contains some of the best thought of the artist who designed it. Stretching down through the center of the garden, over the snow-flecked verdure, will be a rustic arbor made of white birch. This will be intertwined with autumn foliage, with vari-colored electric bulbs scintillating among it. The stairways from the floor to the elevated platform, also will be of rustic work. Several carloads of white birch were brought from the Adirondacks especially for this work and it, too, will be worthy of permanency. The central rustic bower is a masterpiece in that it combines the maximum of attractiveness with the minimum exaction upon the valuable floor space. The arbor has a sloping roof that is supported solely by pillars rising to the peak and at the ground the pillars are the stanchions of rustic seats. These seats are not double, or dos-a-dos, but alternately face each way, so that each exhibitor gives up the seating room for only half the length of his space.

"The general picture will not be marred by any visible railings. Those on the elevated platform will be concealed by art noveau paintings, introduced so as not to have too much mountain scenery, and this portion of the work will be further enriched by draperies of wine colored silk. In all, more than 20,000 yards of draperies will be employed. The demarcation of the spaces of exhibitors will be by means of narrow strips of wooden moulding, finished in forest green. The desks and chairs and all the furniture of the exhibitors, also, will have this tone of forest green.

"In the restaurant, off the foyer, the same general scheme will be carried out, but in the concert hall there will be a complete departure."

FRENCH TEST RIGOROUS

Paris, Dec. 7—The victorious 45-horsepower Westinghouse, returned from the 1,200-mile run to Monaca and back, is shown in the salon in all its muddy glory. Among other roadsters returned from this tour without being any the worse and without a minute penalty in the whole distance covered at an average of 22 miles commercial per hour, were the three Bayards, the three de Dions, the two Decauvilles, an Opel, a Herald single-cylinder car, which carried a useful weight of 1,800 pounds, and a Chenard-Walcker. Several cars were penalized 2 and 3 hours, each minute counting one point. Twenty-one of the thirty-eight starters finished the journey officially. Weather conditions were extremely bad for the tour, and pneumatics and anti-skidding bands were hardly used.

STATE AID A SUCCESS

Report from Michigan Tells of Good Roads Work Done by Highway Department

Washington, D. C., Dec. 17—The good roads agitation in Michigan at last shows results, and the first annual report of the highway department, which will be presented to the legislature of 1907, contains some interesting figures. Although the department has been established only 17 months, the work done in that time has been enormous. The good roads agitation has become a fixture, and the more good roads there are made the more there are to be made. During the time of the department's existence the expenses, including $1,500 for maps, have been $13,436.51. The total number of miles of road built in that time has been: Stone, 52 miles; gravel, 33 miles; gravel and clay, 90 miles. At present applications for state rewards on 87 additional miles of stone road to be built in 1907 are on file. Considering the fact that the New York highway department built only 5 miles of road during the first year of its existence, Michigan has a right to be proud of its own department. The state highway commissioner in his report estimates the value of roads constructed under the direction of the department at $163,177. The state has paid in rewards $61,626, and on completion of the roads now in course of construction will pay $77,082 additional. Since the contracts for the labor of the convicts at the state penal institutions probably will not be renewed, the convicts may have a chance to aid in the improving of the roads. Commissioner Earle has made lengthy investigations as to the employment of convict labor in other states and the idea is finding favor. The finest road in the state at present, according to the report, is the 2-mile stretch from the city of Lansing to the Michigan argicultural college. This road is of macadam, 22 feet wide, and cost $13,485, of which the state paid $2,000.

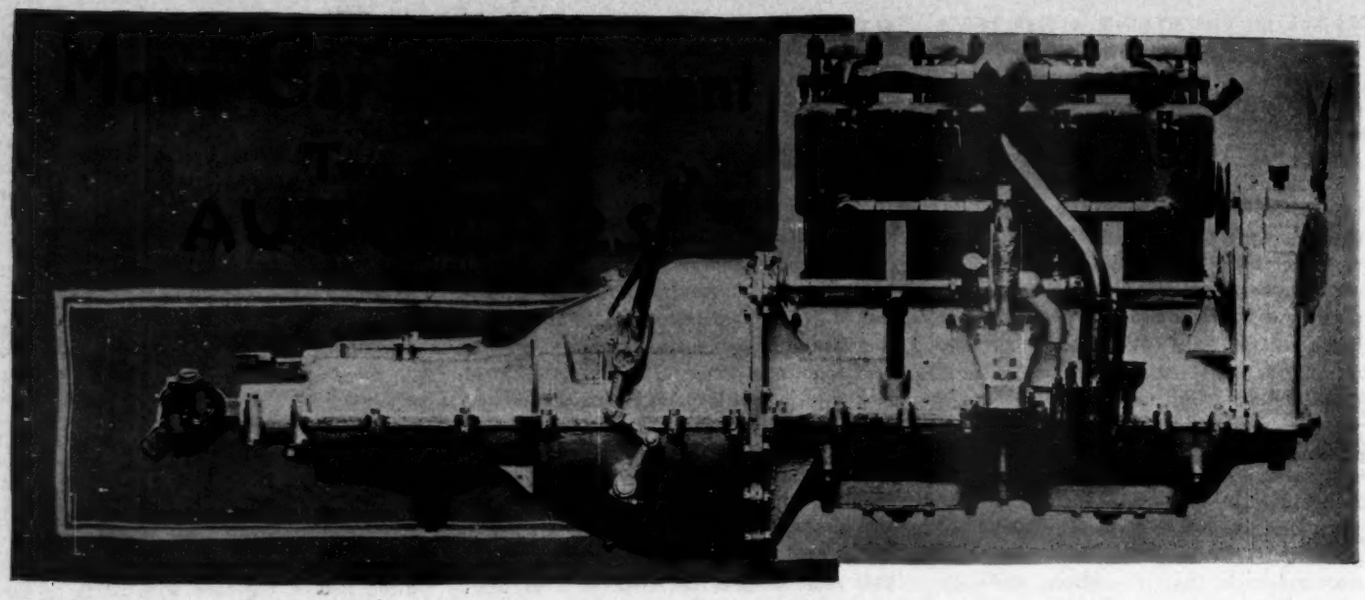
The office of public roads of the agricultural department has compiled figures regarding the mileage of the public roads of Kansas, from which it appears that in 1904 there were 101,196 miles of public road in that state. This number represents the miles of roads which had been opened up and were in use at that time. Of this, 158½ miles were surfaced with gravel, 111¾ miles with stone, and 3 miles with shells, making in all 273¼ miles of improved road. By comparing the total road mileage with the area of the state, it appears there were 1.2 miles of public road per square mile of area. A comparison of mileage with population shows that there was 1 mile of road to every fourteen inhabitants, but only 1 mile of improved road to every 5,386 inhabitants. The county commissioners of each county may levy an annual road tax of not to exceed 3 mills on the dollar on all taxable property in their respective counties, except on real estate in cities of over 2,000 inhabitants. This tax may be paid in labor at the rate of $1.50 per day, or $3 per day for man and team. In counties having a population of 8,000 or over the county commissioners may levy a 2-mill tax on all property, city and county, for the purpose of permanently improving roads. This tax, however, must be authorized by a vote of the people before it can be levied.

EXPORTS IN OCTOBER

Washington, D. C., Dec. 9—The latest figures compiled by the government show that during October, 1896, motor cars valued at $201,748 were exported from the United States, together with parts to the value of $45,346. During the corresponding month of last year the exports of cars and parts combined were valued at $133,988. During the 10 months ending October, 1906, the number of cars exported was 857, the value of which was $1,379,935. Exports of parts during the same period were valued at $155,228. The number of cars exported during the first 10 months of 1905 is not given in the statistics, but the value of the exports of cars and parts during that period is stated to be $2,369,621, as against $1,576,877 during the 10 months of 1904. During October last cars and parts were shipped to the following countries: United Kingdom, $43,633; France, $15,475; Germany, $12,423; Italy, $184; other Europe, $17,782; British North America, $48,600; Mexico, $67,389; West Indies and Bermuda, $4,665; South America, $18,923; British East Indies, $655; British Australasia, $5,563; other Asia and Oceania, $6,611; Africa, $4,847; other countries, $344.

ITALY OUT OF GRAND PRIX

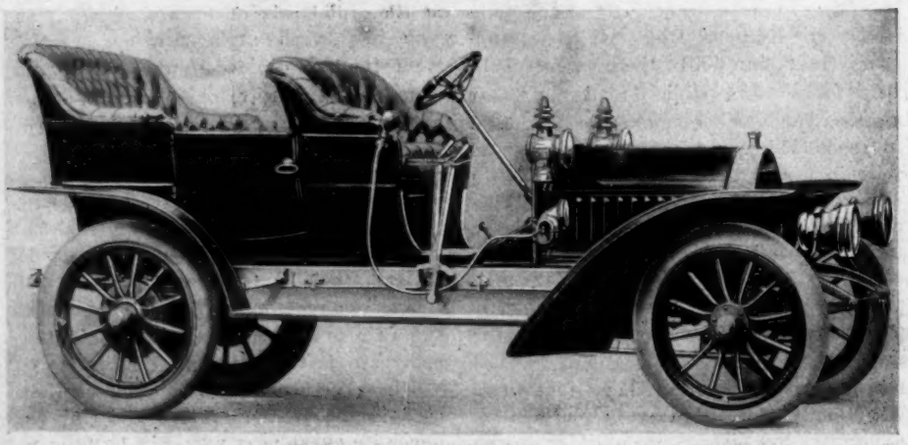
Turin, Dec. 14—Special cablegram—Italy intends bending all its efforts toward making its Brescia race the biggest of the year, and following out this policy the Automobile Club of Italy today decided that it will not officially take part in the grand prix of France. Similar action was taken at a previous meeting when the club decided it would follow the example of the Automobile Club of France and not take part in the Vanderbilt cup race in America, although this does not mean that Italian cars will not be represented, the makers being free to enter the same way as did France this year. The Brescia circuit race will be made a model if it is possible to do so, and the club thinks the rules adopted for the Imperial cup race over the Taunus circuit in Germany are just about right. Therefore, it has been decided that these rules will be used in the Italian event. The club believes its event next year will be fully up to the expectations of the promoters.



SIDE VIEW FOUR-CYLINDER AUTOCAR POWER PLANT, SHOWING ENCLOSED CLUTCH AND GEARCASE

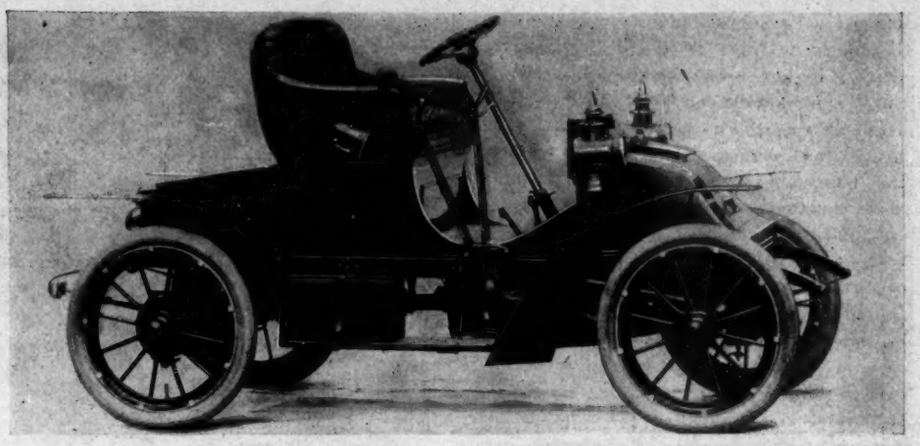
AS IN 1906 there will be two Autocar models for next year, a 30-horsepower touring car and a 12-horsepower runabout. The Autocar Co., Ardmore, Pa., maker of these machines, has added to and made many changes which make both these models appear as full fledged men as compared with youths when contrasted with the two models of this season. The runabout is the same exteriorally as at present save for the classy appearance created by the addition of a brief running board uniting the fenders at each side with the battery box reposing on the right board at the rear, and the alterations in body lines consequent upon lengthening the wheelbase from 76 to 81½ inches and increasing the diameter of the wheels from 28 to 30 inches, but using 3-inch tires, the same diameter of pneumatics as now fitted. Otherwise the body is as heretofore, especially conspicuous by a sub-basement tubular radiator in front and rising from the top of this is the Renault-shaped hood, if the Renault hood increased in width and with its longitudinal measurement cut in half is considered. Not to be overlooked, however, in the growth from year to year of this favorably known runabout is the use of full elliptical springs in the rear where semi-elliptics previously have held sway. The half-elliptic style of spring in front has been retained. In glancing over the evidences of growth in the runabout's big brother—the 30-horsepower touring car — during the twelve-month just elapsed, not so pronounced changes are encountered. Of these first and foremost comes the growth in cylinder dimensions—the bore and stroke now measuring 4¼ and 4½ inches respectively instead of 4 and 4½ inches—and the horsepower rating jumping from 28 to 30 because of this added ¼-inch in the cylinder bore. As if to keep pace with this the wheelbase has jumped from 100 to 110 inches. Not to be outdone by the other parts the wheel diameter has been increased from 32 to 34 inches, the tire size remaining at 4 inches, as at present. In body dress changes are evident. Tonneau doors instead of being hinged at the front side are carried on hinges at the rear. In adjusting itself to this new condition the lower rear corner of the door is easily curved in place of the square corners of 1906. Front fenders are not so plowsharish as at present, but carry lines of more racy appearance, which, coupled with mud flaps on their inner sides uniting them with the car frame for the prohibition of mud to the body and the carrying of shallow flanges along the outer sides, makes these members decidedly more valuable than formerly. Between the running board and the car frame is a continuous mud flap, which was wanting this year, but otherwise the body has remained unchaged barring those increases in tonneau and front footboard room occasioned by the 110-inch wheelbase.

Scanning the exterior of these two models reveals but little of the year's development. A look at the chassis tells a more interesting story and while this and the succeeding pages are not favored with complete views of the stripped chassis they contain illustrations telling clearly what the thinking minds of the Autocar factory have been doing since last these cars reposed in burnished form before the gaze of the inquiring throngs at a motor show. Unit construction and three-point support tell in a nutshell the story of this change. What has been done? This year the motor and transmission are separate castings, with the flywheel exposed between them and all supported on a heavy subframe. Now all is changed. The crankcase and gearbox are bolted together and in doing this the gearbox has been extended forward, enclosing the flywheel and clutch and forming a single unit with the crankcase, and, as if to add the keystone to all, this compound casting is supported at three points, one at each side of the motor opposite the space between the second and third cylinders, and the other beneath the center of the gearbox, where elasticity is added by the introduction of a spring. With these changes has come the relegation of the subframe to the oblivion of forgetfulness. Coupled with this is the corresponding simplicity in the construction of the main frame. Glancing now at the unit case construction of the four-cylinder car, five



AUTOCAR 30-HORSEPOWER TOURING CAR FOR 1907

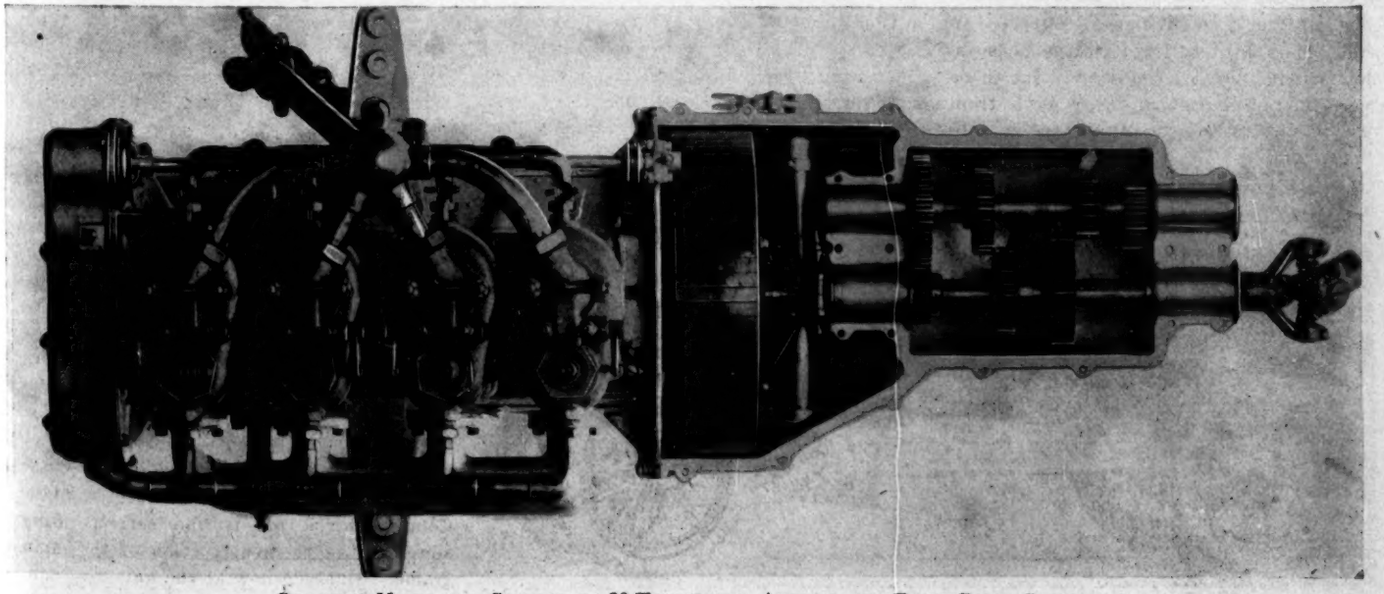
parts are seen to constitute the case—the top of the crankcase supporting the four cylinders and also carrying the three bearings of the crankshaft; the bottom half of the crankcase with its pair of rectangular openings, one beneath the front two cylinders and the other beneath the rear two, the case itself doing duty chiefly in holding the oil for the splash lubrication; the casing part housing the half-time gear in front as well as the crankshaft pinion and the pump shaft gear; the lower half of the gearbox case, which is expanded at its forward end to envelop the clutch and support the cross shaft carrying the pedal for disengagement; and, lastly, the top half of this gearbox housing. When the top half of the housing is removed the entire top of the gearbox is off and all gears and all parts of the clutch become instantly accessible. The rear end of the upper and lower halves of the crankcase are heavily flanged, as are the forward ends of the gearbox halves, these flanges permitting of bolting these several parts rigidly together so one aids in supporting the other and vice versa. To lend rigidity these flanges are stiffened by a webbing process on the crankcase castings. Other webbs stiffen the union of that part of the housing encasing the flywheel and clutch with that enclosing the sliding gearset. The two motor-supporting arms are integral parts of the aluminum top of the crankcase, which casting in this year's machine is formed of cast iron; but the lower half of the case is now aluminum alloy, a metal used in its constituency at present. As with such houses as Stevens-Duryea, Maxwell-Briscoe, Mora and others which have pinned their faith to unit construction and to three-point support in most cases, the advantages urged for forming the crankbox and gearbox in a unit are those of perfect alignment and the preventing of all strains received by the frame from being transmitted to the driving system, it being well nigh impossible



AUTOCAR RUNABOUT WITH 81½-INCH WHEELBASE

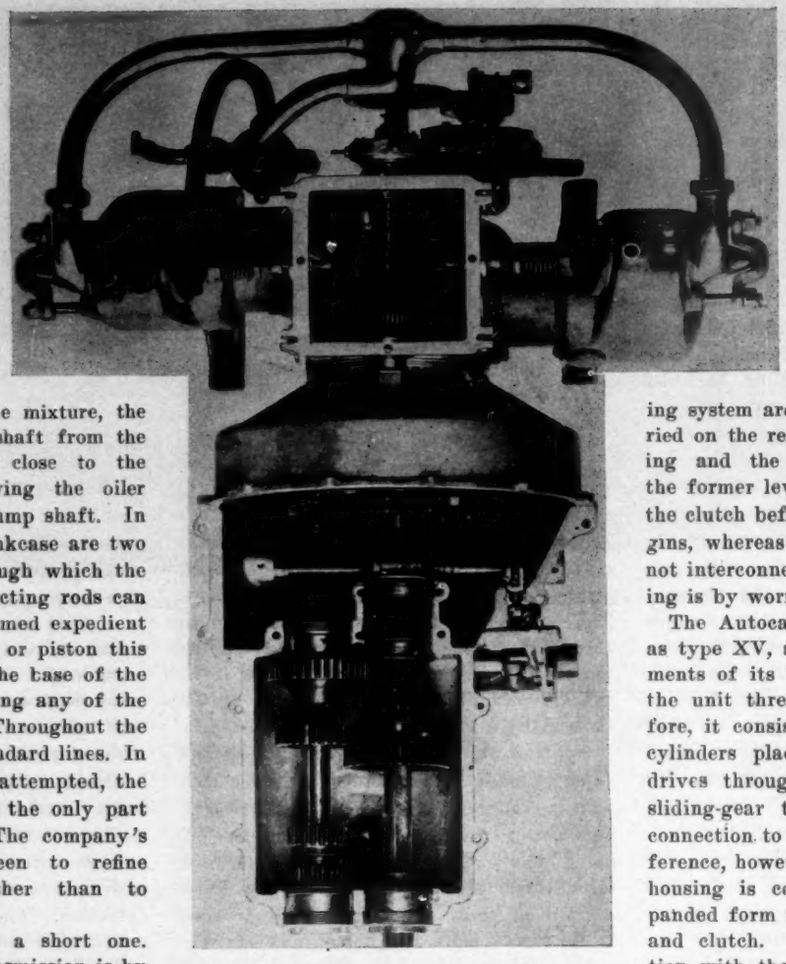
with this construction for the motor crankshaft, the clutch and the mainshaft of the gearset to get out of alignment; and from this to the back axle a couple of universal joints are looked to to care for alignment. The housing of the flywheel, as done in this case, has previously not been attempted, preference being to place it at the forward end of the crankcase sooner than make a housing to entirely encase it.

Apart from this unit construction the changes made in the motor, in the clutch and in the gearbox are not many. The firm has not altered from its practice of using jump spark ignition with current taken from storage cells, with dry cells carried in reserve, nor has it wavered in its use of plain bearings for the crankshaft and camshaft. Still retained also are the separately cast cylinders with ports on the left side with exhaust valves in the floors of these ports and intake valves in the center of the cylinder heads. Retained also is the single camshaft with cams pinned to the shaft and the shaft driven by a forward enclosed half-time gear. From this shaft both sets of valves are opened, the exhausts by direct lifter rods with rollers on their lower ends bearing on the cams, and the intakes by lifter rods and rocker arms, the rocker arms carried within the housing for the valve and removed with this housing. Retained also is the peculiar intake manifold, consisting of a long upward pipe from the carbureter to a point on a level with the tops of the cylinders, and between second and third, from which four pipes radiate like so many fingers to the intake housings on the tops of the four cylinders. The two-studded yoke still retains the intake valve housings in place and access to the exhaust valves is through openings in the ceilings of the ports, these openings being normally closed by screw caps. Priming cups are carried on the right side of the cylinders. The water circulation, provoked by a rotary pump on the right side and driven by separate shaft, is to the lower part of the jackets at the right and from the top of these jackets on the left. Cooling is gained by a tubular radiator of the finned variety, assisted by a belt-driven fan supported on a framework mounted on the housing of the half-time gear. Internally the motor is also much as heretofore—with ground cylinder walls, ground pistons, ground piston rings, ground bearings and its many other evidences of careful construction. Instead of



COMBINED MOTOR AND GEARBOX IN 30-HORSEPOWER AUTOCAR AND THREE-POINT SUPPORT

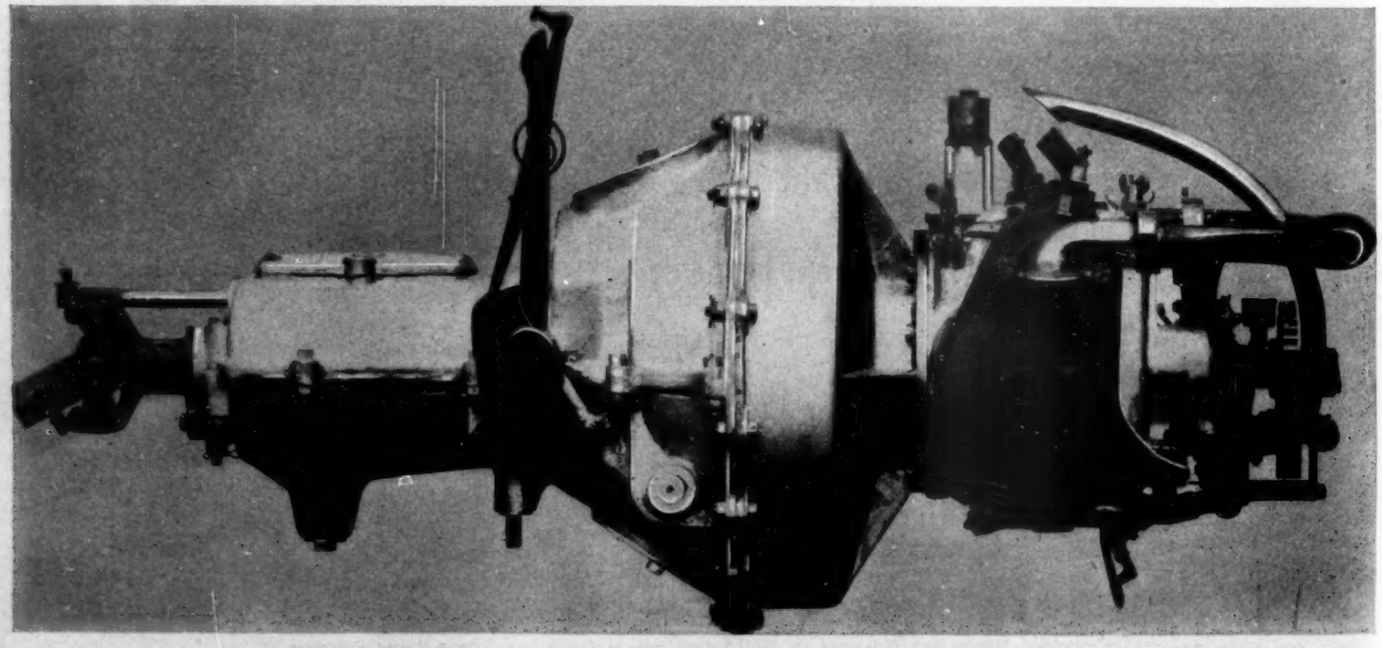
mounting the lubricator on the dash in front of the driver, it has been carefully stowed away on the front side of the dash beneath the bonnet, where its temperature is kept more constant. As at present, its three leads pass direct to the three bearings of the crankshaft and its fourth goes to swell the oil supply in the crankcase. Not to be passed over is the use of a Holley carbureter for furnishing the mixture, the driving of the commutator shaft from the camshaft and carrying it close to the crankcase, as well as driving the oiler from the rear end of the pump shaft. In the left top part of the crankcase are two large inspection plates through which the lower bearings of the connecting rods can be reached. When it is deemed expedient to remove a connecting rod or piston this can be done by removing the base of the engine box without disturbing any of the other parts of the motor. Throughout the Autocar motor is one of standard lines. In it nothing radical has been attempted, the intake valve housing being the only part bordering on radicalism. The company's apparent tendency has been to refine standard construction rather than to create.



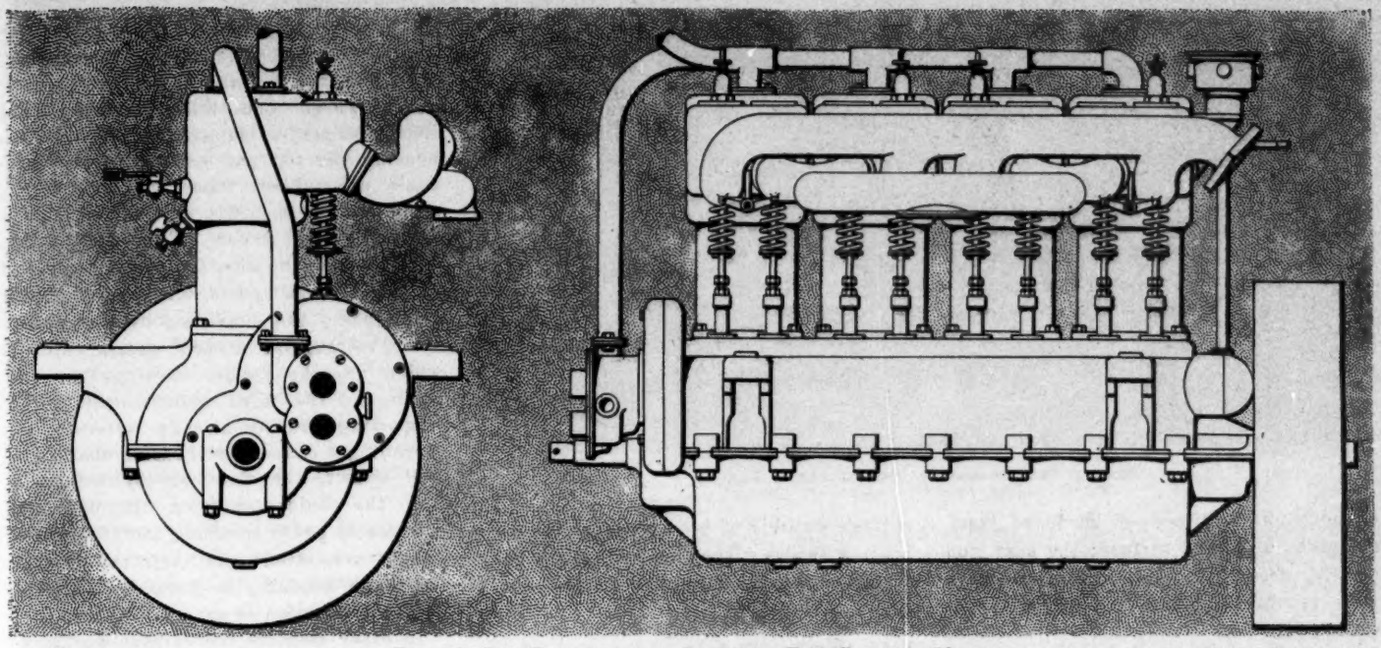
TOP VIEW OF RUNABOUT PLANT

The transmission tale is a short one. Flexible union with the transmission is by a three-disk clutch familiarly spoken of by the company as the floating ring clutch. Like the Thomas and not a few others, it consists of three disks, two attached to the flywheel. Interposed with these is a third disk associated with the shaft to the crank gearbox. Engagement is by spring and disengagement by pedal, coupled with the Autocar lockout device, enabling the car to coast without the driver having to keep his foot on the clutch pedal. As this year, so it is next with the transmission. It is of the straight sliding type, affording three forward variations with a single reverse and direct drive on the top speed. Both shafts are in the same horizontal plane carried between the halves of the gearbox. Supporting each are Hyatt roller bearings. Gears and shafts are drop forgings of high carbon steel, the former case-hardened. The rear axle system, also carried on Hyatt roller bearings, follows standard construction throughout, and is stiffened by the use of radius rods from the ends of the housings to a point on the side of the frame. Incorporated in the braking system are two separate sets, both carried on the rear hubs, one internal expanding and the other a contracting band, the former lever-applied and throwing out the clutch before the brake application begins, whereas the latter, pedal-applied, is not interconnected with the clutch. Steering is by worm and sector.

The Autocar runabout, officially known as type XV, shares many of the improvements of its big brother, notably that of the unit three-point support. As heretofore, it consists of a pair of 4 by 4-inch cylinders placed crosswise in front and drives through a three-disk clutch and sliding-gear transmission with propeller connection to the live rear axle. The difference, however, is that now the gearcase housing is continued forward in an expanded form to accommodate the flywheel and clutch. Uniting this expanded portion with the rear of the crankcase is a funnel-shaped casting serving as a housing for the forward side of the flywheel and clutch. Thus the crankcase, the intermediate funnel-like housing and the gearbox with its expanded end are bolted together, forming in reality a union. In supporting these the three points of carriage are two at the front beneath the cylinders and the third beneath the cen-



SIDE VIEW TWO-CYLINDER AUTOCAR, WITH UNIT CONSTRUCTION AND THREE-POINT SUPPORT

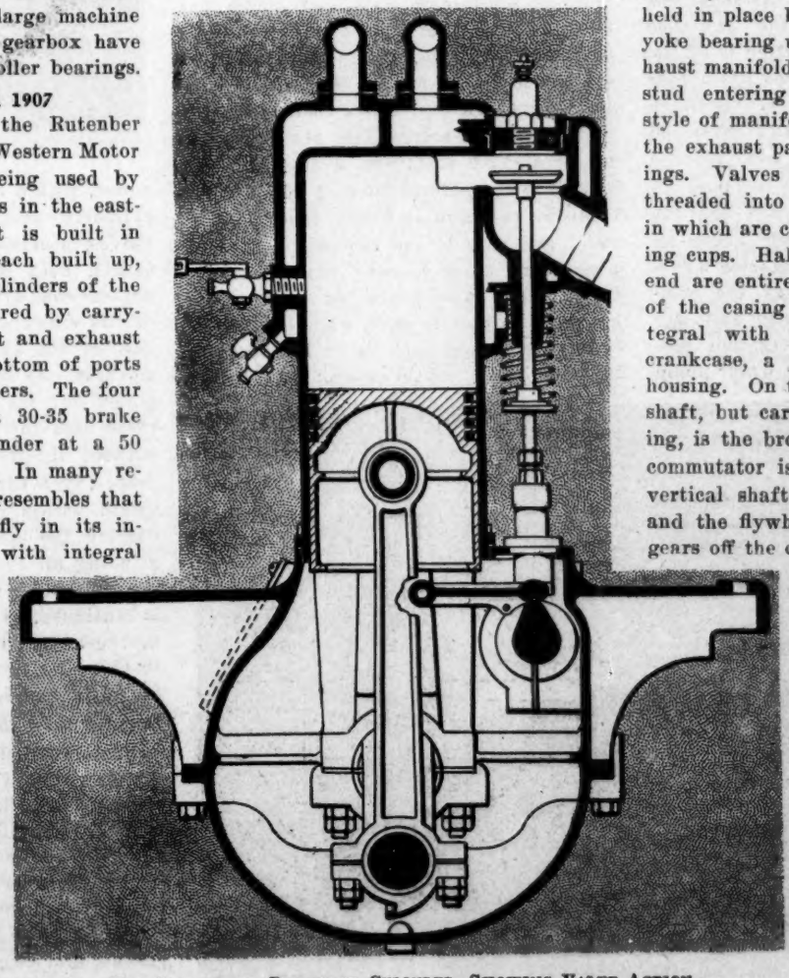


END AND SIDE ELEVATIONS OF RUTENBER FOUR-CYLINDER MOTOR

ter part of the gearbox. Somewhat of a change has been made in the intake piping, the carbureter now being located in front of the left cylinder with a short pipe uniting with the manifold to the cylinders at a point directly in front of the crankcase. Automatic intake valves are retained and in most details the motor remains as at present. This car differs in structural design from the large machine in that both shafts of the gearbox have support on ball instead of roller bearings.

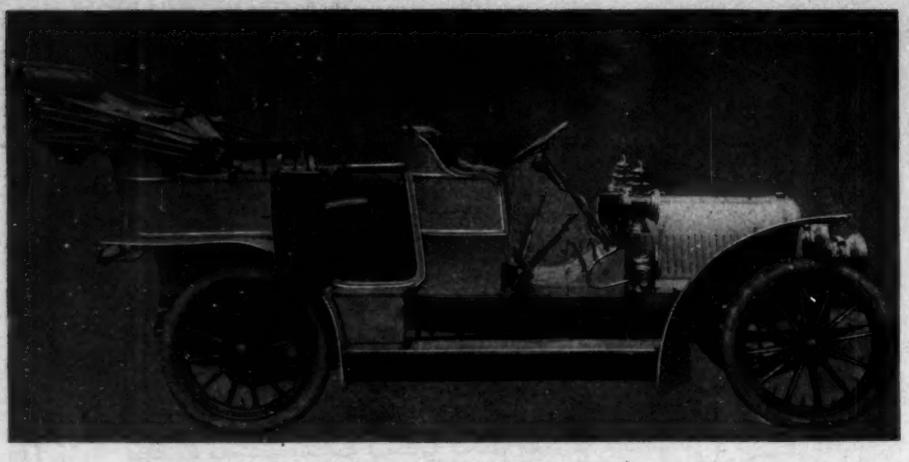
RUTENBER MOTORS FOR 1907

For the coming season, the Rutenber motor, manufactured by the Western Motor Co., Logansport, Ind., is being used by large numbers of car makers in the eastern and central states. It is built in four or six-cylinder form, each built up, however, of 4½ by 5-inch cylinders of the water-cooled type and featured by carrying the interchangeable inlet and exhaust valves side by side in the bottom of ports on the left side of the cylinders. The four cylinder model is rated at 30-35 brake horsepower and the six-cylinder at a 50 per cent increase over this. In many regards the Reutenber motor resembles that of the present season, chiefly in its individual cylinders formed with integral waterjackets and its two-piece crankcase with the five crankshaft bearings supported in the upper half, leaving the lower portion to fill the duty of an oil reservoir and when removed offering free access to the lower bearings of the connecting rods as well as those of the crankshaft. Those familiar with the general outlines of this motor in the past will have no trouble in recognizing it because of its water circulation system, which consists of a pair of brass water pipes lying along the cylinder heads—one the intake pipe from the pump and the other the return pipe to the top of the radiator. In connection with this piping scheme there is a vertical partition in the jackets. Because of this the water tom of the jacket, beneath the partition, entering the top of the jacket on the right side of the cylinder is forced to the bot- and up through the right side to the return piping. Marked similarity with past models appears in the intake and exhaust manifolds, the former of the double Y design and the latter of the straight pipe variety with a short curved branch to each cylinder. Both of these pipings are held in place by a set of four yokes, each yoke bearing upon the intake and the exhaust manifold and held in place by a long stud entering the cylinder casting. A style of manifolding is also used, in which the exhaust part is above the valve openings. Valves are accessible through caps threaded into the tops of the ports and in which are carried spark plugs and priming cups. Half-time gears at the forward end are entirely enclosed, the major part of the casing for them being formed integral with the upper portion of the crankcase, a front cover completing the housing. On the forward end of the camshaft, but carried close to the gear housing, is the bronze gear water pump. The commutator is carried on the top of the vertical shaft between the rear cylinder and the flywheel, and is driven by bevel gears off the camshaft, as heretofore.



END SECTION OF RUTENBER CYLINDER, SHOWING VALVE ACTION

An examination of the many parts not seen on the outside reveals the same careful construction that has characterized this motor in the past. In this list can be noted the use of bevel-seated valves forged in one piece and thoroughly annealed; connecting rods are forged from open hearth steel, are adjustable at the lower ends and are bushed with bronze and babbitt bearings; wrist pins, of large



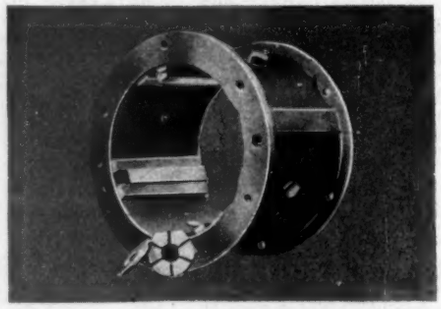
LOZIER 40-HORSEPOWER 1907 TOURING CAR

diameter, and formed of hardened steel, are given a ground surface; the cast iron pistons, ground to size, have four rings with square cut joints and carry oil recesses; bearings carrying the crankshaft are phosphor bronze with a babbitt filling; the crankshaft, a steel drop forging, is carried on five bearings and has its surface ground all over, together with an integral flange to which the flywheel is bolted; the crankcase is an aluminum alloy housing of standard design; and the camshaft and cams formed of steel, case-hardened all over and accurately ground, are completely enclosed in the crankcase and run in oil. This shaft has an end flange to which the half-time gear is bolted. The valve action is of the direct lift type and introduces lifter rods of hardened steel and bronze. Between the roller on the bottom of this lifter rod and the cam is a transverse lever pivoted at one end with its opposite end and interposed between the lifter rod and the cam, the object of this lever being an easier cam action as well as quieter movement. The commutator is of the company's design and is made with hardened steel contacts and has the terminals protected by a glass cover. The water pump is made entirely of bronze except the steel bearing shafts. The flywheel is regularly furnished with a cone face adapted for a cone type of clutch.

THE 1907 LOZIER

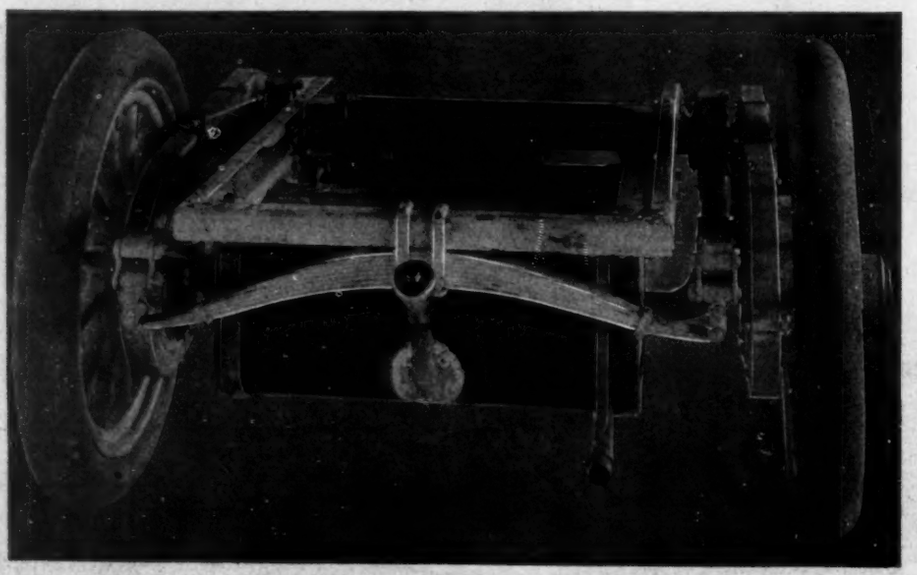
Externally the 1907 Lozier car is practically a duplicate of the present machine, its general lines being similar throughout, but a cursory chassis examination reveals the presence of a few added features, notable among which is the enclosing of the side drive chains, a custom not previously adopted by American makers, but one which has been under consideration by builders of foreign cars and which has been taken up during the present season by a few of them, notable among which are the Mercedes and C. G. V. The general impression that chain casings greatly impair car appearance does not hold good in these three instances, a fact due primarily to the natural housing afforded the chain by the running board, fender, wheel itself and step to the tonneau door. Opponents of chain housing have generally based their convictions on experiences gained from bicycle days, when the housed chain was looked upon as an incumbrance in every sense of the word. The Lozier housing is two aluminum castings for the end pieces, one enclosing the sprocket on the jackshaft and the other the sprocket on the wheel. Connecting these two castings is a central supporting member and housing the top and bottom part of the chain are rubber tubes of rectangular cross section secured to the aluminum castings with bronze clips and bolts. Viewed from the side, the housing appears as two D-shaped parts with their vertical sides facing and connected by a series of three rectangular shaped parts, two of which are the rubber housings for the chain and the third or intermediate the supporting housing already referred to. Advantages claimed for housing chains are well known, the chief benefit being to keep the chain free from dirt with the increase in power resulting therefrom. One danger associated with their use is that the chain breaking is generally followed by the destruction of the chain housing.

In other respects the careful workmanship and accuracy of design characteristic of Lozier construction remains, improvements appearing in not a few places. The



LOZIER CLUTCH CASING

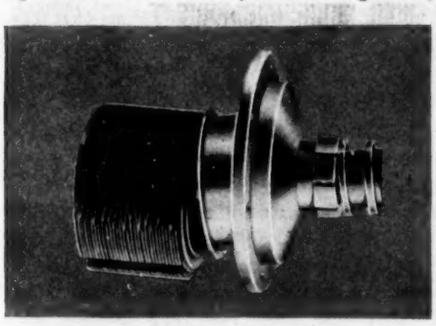
motor, with a rating of 40 horsepower, has cylinders cast in pairs with opposite valves, necessitating the use of two camshafts, both of which are well encased within compartments on the upper part of the crankcase. The forward and rear half of the shafts are encased by a removable cap on which are mounted the guides for the lifter rods. By removing these caps the camshaft may be removed without interfering with the crankcase proper, yet for lubricating purposes the splash within the case proves sufficient. Casting the cylinders in pairs as well as grinding all such parts as cylinder walls, pistons, piston rings and bearing surfaces is continued, as is the housing of the half-time gears, carried in front of the motor. In this housing are five gears—crankshaft pinion, a couple of half-time gears, the gear for the pumpshaft on the left and the magneto gear on the right, the latter two taking their drive respectively from the exhaust and intake gears. Cams are formed integrally with its shafts; the crankshaft is machined from a solid forging of 30-carbon steel and has the arms webbed out instead of being hot-forged; its bearings are lathe-turned, hardened and ground, and Parson's white bronze is used for supporting the three shaft bearings;



SHOWING PLATFORM SPRING ON LOZIER CAR

pistons are made from annealed gray-iron castings and carry four rings; the wrist pins are each 1 inch in diameter with a half-inch bore throughout their length, and are hardened steel members, each held in position by a couple of screws which project into the hollow of the pin and are wired in position on the inside; valves forged from a 5 per cent nickel steel have the heads and stems integral, the former with a 1⅞-inch diameter and the latter with a ⅝-inch diameter. In making the pistons allowance has been made for expansion by having the lower end 5/1000 small, and the upper end, where expansion is greater, 15/1000 small. The center part of the piston is not recessed, as commonly done on large cars.

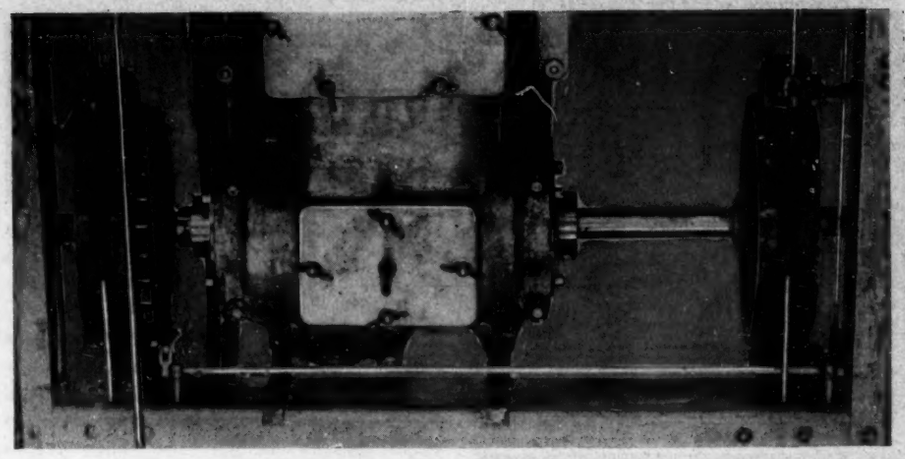
The carbureter is of the automatic, variable type with balanced throttle operated and provided with hand control from the steering wheel, which supercedes the governor action. Gasoline, carried in a 27-gallon tank suspended under the rear of the chassis, is forced under 1-pound pressure to the carbureter. There are two separate and distinct systems of ignition,



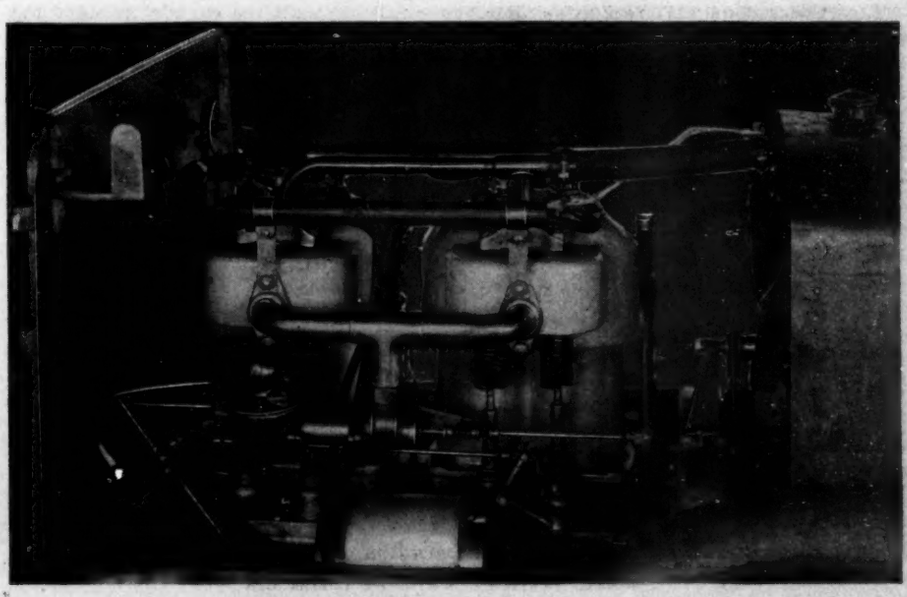
LOZIER DISK CLUTCH

one set with current taken from a 50-ampere-hour storage battery passing through a single coil and distributor to a set of spark plugs carried over the exhaust valves, and the other system incorporating a Bosch high-tension ball-bearing magneto connected with a set of spark plugs located above the inlet valves. The radiator is of honeycomb type containing 2,760 copper tubes. Assisting it in the cooling of the motor is a ball-bearing fan immediately in the rear of it, assisted by the flywheel, which has fan-shaped blades. Water circulation is aided by a centrifugal pump carried midway of the motor on the left and driven by a separate shaft. A mechanical oiler with independent pump is located on the dash, and a 2¾-gallon auxiliary oil tank, carried on the chassis frame, replenishes the dash oiler by air pressure. From the oiler on the dash leads connect with the principal bearings, which are encircled by oil channels furnished with felt wicks, the oil in these channels being kept under light pressure by the mechanical lubricator. Within the crankcase the splash system is employed, from which system the separate compartments for the camshaft as well as oil for the cam and valve lifters is provided.

In delivering the power generated by the motor to the rear wheels, flexible connection is made by a multiple disk clutch carried on the flywheel, this clutch having in all forty-six disks arranged in two sets, one of bronze and the other steel, these alternating with each other and operating in an oil-tight case. These disks are of 6-inch diameter with a thickness of 1/16-inch for the steel set and 5/32 for the bronze. Engagement is by a very long coil spring surrounding the shaft connecting with the gearbox. The Lozier transmission, a four-speed and reverse selective outfit, is formed as an attached unit with the crankbox, the forward end of the gearbox being extended to the front in the form of a narrow trough beneath the clutch-shaft until approaching the flywheel, where it expands, forming a quarter-spherical basin housing the lower half of the flywheel. It is bolted at its forward end to the rear of the engine base. Besides assisting in supporting the forward end of the gearcase, this housing serves to exclude dirt from the clutch and other parts and also stiffens the construction and prevents misalignment. The gearcase is further supported, however, by a central arm, on each side extending to the side pieces of the frame, and also by a couple of straps supporting the differential housing on a crosspiece on the car frame. Nothing radical appears in the case. Main and countershaft are side by side in the same horizontal plane, with their Hess-Bright bearings carried in the lower half of the case. Gears on the countershaft are of the ring type bolted to integral flanges on the shaft, except in the case of the small master gear on the rear end of the shaft, which is keyed in position. Two sliding sets on the mainshaft are operated in standard form, which the shifter rods encased in one side of the gearbox housing. A third shifter is required for the reverse and the operation of this set of three is through a single lever at the right, operating in a three-slot quadrant, the change speed lever connecting with the shifter rods by sliding sleeve and drop arm, the lower end of the latter engaging respectively with the yokes on the top of the forward end of the shifter rods. The jackshaft is carried on Hess-Bright bearings, as are all of the road wheels. Nickel steel is used largely throughout the car. In the braking system is included two water-cooled foot brakes on the jackshaft working through equalizing devices and both cooled from a special water tank.



DOUBLE JACKSHAFT BRAKES ON LOZIER CAR



MAGNETO SIDE OF 40-HORSEPOWER LOZIER MOTOR

AMONG MAKERS AND DEALERS

STORE OF NEW INDIANAPOLIS HOUSE

Takes on the Holsman—The Dosson Carriage Co., Toledo, O., will handle the Holsman during the coming season.

Collins a Continental Man—The Continental Caoutchouc Co. announces that B. J. Collins, formerly with the B. F. Goodrich Co., has joined its forces and is now acting as general representative of the Continental company.

Ohio Depot for Royals—The name of the Ohio sales department of the Royal Motor Car Co. has been changed to the Reese Motor Car Co. E. Schriver Reese has been in control of the concern for the past 2 years and has also handled the line of Columbus electrics. The company will move to a new establishment near the corner of Euclid avenue and Perry street. For a showroom and salesroom the company will have a space 75 by 50 feet, and back of this, running 117 feet to an alley, will be erected a one-story building, which will be used as repair shop for the retail business. The new quarters will give about 7,500 feet of floor space, not including a large basement.

An Oricle Garage—One of the handsomest and most modern garage south of the Mason and Dixon line has just been completed by the Mar-Del Mobile Co., of Baltimore, which has the Cadillac, Waverly and Franklin agencies. The new building is 150 feet wide and 150 feet long. The first half, which was occupied last year, was 75 feet wide and 150 feet square. The type of the architecture is Spanish mission, while the structure is of concrete and brick. The Mar-Del company occupies the best portion of the first floor as a storage and show rooms for the various makes of cars. The offices of the company are on the second floor, while there is additional space on that and the third floor for storage. A repair shop is on the third floor. The Automobile Club of Maryland also has its rooms in the garage, with bowling alleys in the basement.

Taximeter Cabs Popular—Taximeter cabs are about to be started up in Bordeaux, Marseilles, Lyons and Lille, the most populous towns in France. These cities and towns will use about 10,000 chassis for the coming two seasons. In Paris alone probably 2,000 cabs will be running before the end of 1907.

Merely Change of Name—The Citizens Motor Car Co., of Cincinnati, was launched December 1, with a capital of $100,000. It will handle the Packard, Pierce, Autocar and Cadillac. This is merely a transfer of the business of the Williams Valve Co., which formerly handled these cars. The officers of the new company are: J. M. Richardson, president; J. W. Tarbill, vice-president and general manager; Robert Ramsay, secretary and treasurer.

Cleveland Doings—The Cleveland Motor Car Co. is arranging to consolidate its factory, general offices and retail establishment in the Whitney power block, near the corner of St. Clair and Murison streets. Heretofore its retail store has been on Erie street, near Prospect, while its cars have been built in a east end factory. The new arrangement gives the concern two floors in the large power block, several office rooms and a large salesroom—in all about 25,000 square feet of floor space.

Is White's Western Man—Charles A. Hawkins, who has been identified with White interests on the Pacific coast for 18 years, has been made western sales manager of the new White Co. His territory includes all the country west of the Mississippi river and also the state of Illinois and part of Indiana. Mr. Hawkins' right-hand man in Chicago and vicinity will be Webb Jay, the Chicago branch manager. On the Pacific coast Mr. Hawkins' lieutenant in charge will be W. M. Gardiner, who has also long been associated with the White Sewing Machine Co.

Indianapolis' Latest—The Capital Automobile Co. has opened for business in Indianapolis. The company erected its own building, a modern structure consisting of three floors and a large basement, and in addition to selling cars, will manufacture tops. The state agencies for the Reo and Jackson have been obtained. The first floor will be devoted to display purposes, the second floor to accessories and parts and the third floor to top making. The company will not attempt a general garage business, being the only concern of its kind in the city, with one exception, that does not conduct a garage in connection. R. J. Irvin is president of the Capital Automobile Co.

Names Five Directors—The Rapid Motor Vehicle Co. held an annual meeting and elected the following directors: A. G. North, H. G. Hamilton, H. C. Gillot, A. A. Corbin, F. J. Jacobs.

Hit by a Train—The Cadillac people have photographed the remains of a model H Cadillac which was struck by an express train running at the rate of 60 miles per hour. An interesting feature of this wreck is that as soon as it was received at the factory the motor was tried and found to still run almost perfectly, having withstood the severe shock without sustaining material injury.

Now Selden Company—The Buffalo Gasoline Motor Co. has been incorporated. A certificate of incorporation of the concern was recently filed in the office of the county clerk in Buffalo. The capital stock is $100,000. The directors are Louis A. Fischer, Abraham Snyder, Albert F. Dohn, Julius J. English and William E. Blair. Another paper was filed showing that the Buffalo Gasoline Motor Co. had filed an application for a change of name to the Selden Motor Vehicle Co.

Kelsey Goes to Europe—C. W. Kelsey, sales manager of the Maxwell-Briscoe Motor Co., has gone to Europe to visit the Paris show and a number of factories abroad. He will return to America about the first of the year, and be fit and ready to drive a Maxwell runabout to San Francisco if the Ford company accepts the challenge of the Maxwell company. Kelsey is accompanied on his trip abroad by Lucius Tyler, of Boston, a brother of the head of the Maxwell-Briscoe-Boston Co.

Winter Test for Westinghouse—Alexander M. Thackara, Jr., sales manager for the Westinghouse, is planning to make a winter trip to test the capacity of the Westinghouse. His plan is to go up through the Berkshires and make an ascent of Jacob's Ladder, choosing as unfavorable conditions as possible. He will be accompanied by several disinterested parties who will take the official time, the endurance and the economy of this particular car. The Westinghouse people have decided for the present not to build any factories in this country.

Girls as Core Makers—Girls as core makers and pattern makers in the foundry is the experiment which is being tried by the Smalley Motor Co., of Bay City, Mich. The company recently doubled its capacity as a manufacturer of gasoline and alcohol engines and has erected an addition which is to be used as a foundry. This addition is given over exclusively to female employes. As it was impossible for the company to secure men to man the foundry the doubtful experiment of employing young women in the addition was essayed. So far it has proved an unqualified suc-

cess. The employment of girls, however, in the new occupation, has caused a dearth of women for housework in the city.

New Corbin Agents—The H. J. Koehler Sporting Goods Co., of Newark, N. J., has been given the Corbin agency for Essex county and middle New Jersey. Henry A. Rowan, Jr., & Co., of Philadelphia, has also taken the Corbin agency.

De Luxe Recruits—R. H. Baldwin, formerly connected with the Connecticut Telephone and Electric Co., has gone with the De Luxe Motor Car Co as assistant sales manager. Harry King, of Toledo, has recently joined the selling force of the De Luxe company.

New Rainier Agents—The following Rainier agencies were secured at the New York show: Boston, Buck & Price Co., 901 Boyleston street; Rochester, N. Y., Thomas J. Northway, 91 Exchange street; Newark, N. J., Coburn & Belden, 577 Central avenue; Pittsburg, A. L. Richmond, Jr., 507 Wood street.

Will Make the Ideal—A new company has been organized in Bethlehem, Pa., to be known as the Bethlehem Automobile Co. The capital stock of the concern is fixed at $100,000, and it will manufacture a car to be modeled after the English Napier, to be called the Ideal. M. S. Heim, of Reading, who has been connected with the Duryea company, has been appointed manager.

Knox in Los Angeles—Paul Billington has formed the Billington Motor Car Co., of Los Angeles, Cal., and secured the representation in southern California for the Knox waterless line of pleasure and commercial vehicles. The new company is erecting a substantial three-story garage in the business district of the city. The establishment is expected to be finished and ready for opening by January 1.

Hub Locations Scarce—Locations for garages in Boston are becoming noticeably scarce. During the past year so many agencies have been established there that land for sites on which to build motor houses has been in great demand. This is particularly true of the Back Bay district, where a dozen such places have been built and where there are now in course of construction a number of others. The motor car has proved a big boon for real estate in that section of the city and the values on the property have gone up quite a bit.

Knox Change in Philadelphia—A change has been made in the Philadelphia agency of the Knox Automobile Co. The business of the concern was formerly conducted by a branch office, but now it will be transferred to the Knox Motor Car Co., which has been incorporated under the laws of New Jersey. Temporary offices of the company will be at Sixteenth and Wood streets, but as soon as alterations are completed it will remove to 510-512 North Broad street, where they will be permanently located. E. L. Thrasher, formerly of the Knox Automobile Co., is to be the general manager; G. W. Kritler, president, and H. W. Corson, secretary.

Handling Welch in New York—The New York agency for the Welch is in new hands. The business is still conducted under the name of the Welch Motor Car Co., of New York, and R. W. Strong is now the manager. A six-cylinder Welch car will be placed on the market by spring.

Buys Coliseum Garage—The Toledo Motor Car Co., of Toledo, O., last week closed a deal for the purchase of the Coliseum garage at the corner of Fulton and Batavia streets. The few cars on hand, boarders and machinery will be removed to the Toledo Motor Car Co.'s garage on Madison avenue.

Independents Want Shorter Name—General Manager Alfred Reeves announces that the annual meeting of the American Motor Car Manufacturers' Association will be held during the week of the Chicago show, February 2-9. At that time the subject of adopting a shorter name for the organization will come up. Among the substitutes that have been suggested are: American Automobile Manufacturers, Independent Automobile Manufacturers and the American Motor Car Builders.

Dinner for Dealers—The Chicago Automobile Trade Association, at its meeting Monday night, decided to give a banquet just before or during the Chicago show. Fred E. Dayton was appointed chairman of a committee to seek permission from Manager Miles to use on the stand decorations the script used by the respective firms in the names of the cars. The dealers also are considering the promotion of a reliability test preceding the show, although no definite plans have been outlined.

Landed at the Show—The following is a list of the principal agencies which were closed up during the show by the York Motor Co.: Pullman Automobile Agency, Los Angeles, Cal.; Stanley A. Hocker, Cincinnati, O.; Ralph Temple, Chicago; Holland Garage, Easton, Pa.; Keystone Motor Car Co., Harrisburg, Pa.; Pennsylvania Automobile Co., Pittsburg, Pa.; Shaffer Mfg. Co., Baltimore, Md.; Snyder Automobile Co., York, Pa.; J. H. Sullivan, New London, Conn.; Northern Automobile Agency, Boston, Mass. The only important agencies as yet unsettled are Philadelphia and Washington.

New Place in Cleveland—The American Automobile Co., of Cleveland, has just opened a new fireproof establishment at the corner of Ontario and St. Clair streets. It has 10,000 square feet of floor space and entrances on three streets. The establishment has been equipped for the handling and caring for of all classes of vehicles in addition to motor cars.

Raub Interested—Herman Raub, president of the Central Park Brewery, Standard Malt Brewing Co., Empire State Garage Co. and largely interested in various other industrial corporations, has joined John J. McCutchan in the formation of a company for the handling of the Craig-Toledo and Queen cars. The new concern, which is to be called the Empire State Motor Car Co., will occupy the entire building at 2150 Broadway. Mr. McCutchan formerly was sales manager of the Acme Motor Car Co., and was later identified with the Electric Vehicle Co.

New Columbia Stunt—The engine of Fernando Nelson's 40-45-horsepower Columbia, which lowered the record from San Francisco to Los Angeles and afterwards successfully completed a 7 days' non-engine stop run, is again in the limelight. A recent storm raised havoc with the electric wires in San Francisco and the Evening Post of that city was powerless to work its press. Nelson came to the rescue with his Columbia and the engine was connected up with the press and the edition run off in about half the time occupied by the electric motor ordinarily used, the Columbia coast agents announce.

Winton Will Rebuild—The Winton Motor Carriage Co. is going to lose no time in building a garage to replace the one in Baum street, Pittsburg, which burned recently. The company has secured a long lease on a site 120 by 110 feet adjoining the former location and has commissioned Architect Max Bruening to prepare plans for a two-story brick fire proof structure that will cost $30,000. Over $5,000 of equipment will be added to this cost. The new garage will be ready March 1 at the latest and meanwhile Manager Earl Kiser will have his big stock of Wintons stored across the stret, where he will conduct business temporarily.

THE STORY OF A CADILLAC AND A LOCOMOTIVE

THE READERS' CLEARING HOUSE

KEROSENE FOR FUEL

Burlington, Wis.—Editor Motor Age—Will you kindly tell through the columns of the Readers' Clearing House what is the best known non-freezing solution to use? How can a cracked water jacket be repaired if cracked only on the outside? Will a motor run better if a little kerosene is added to the gasoline and will the carbureter have to be changed? Is there much lubricant in kerosene? Is there any company making an ignition outfit for the use of flint and steel?—Arthur B. Zwiebel.

Motor Age treated the subject of non-freezing solutions in its issue of November 8, giving all details. It is now possible to braze cast iron, so that a small cylinder crack might be repaired this way. Or it can be tamped with lead and a brass plate put over to hold the lead, small machine screws being used to hold the plate. It is not advisable to mix kerosene with gasoline, as the heavier oil will settle unless agitated constantly. The motor would be harder to start and the carbureter would have to be readjusted constantly. If kerosene is used as fuel for an internal combustion motor, and is thoroughly volatized the lubricating qualities are destroyed. Motor Age is not aware of any flint-and-steel ignition device.

QUERIES IN VARIETY

Cleveland, O.—Editor Motor Age—May I ask you to answer the following questions in the Readers' Clearing House columns of Motor Age:

1—How can the presence of a broken exhaust valve spring be determined other than by seeing it?

2—My model C Winton was refitted with coils and battery, having previously been fitted with magneto. It has never worked well since so refitted and I have had it at a garage three times, mechanics having put in new exhaust valve springs, four new plugs and new carbureter. It has been tinkered with in all directions, but it does not give results. The compression appears to be as good as ever. What is the trouble?

3—I know a person who intends making an appliance consisting of a cylinder and piston 1¼ inches in internal diameter and he does not use rings. Will this hold 60 pounds compression?

4—Is there any valve on the market which is more secure than the ordinary stop-cock valve? In this valve the screw holding the valve in the bowl came out and at another time the valve itself came out, causing a leak of gasoline and, consequently, a bad fire.

5—Please explain wherein a magneto suffers most from wear.—E. L.

1—A broken exhaust valve spring will cause the valve to close sluggishly or to fail to close at all, according to whether the spring is broken near one end or in the middle, and according to whether the valve is vertical or horizontal. If the spring is broken near one end the effect may be no more marked than that due simply to weakening of the spring, which will produce sluggish closing of the valve at high speeds.

2—The particulars given are insufficient to indicate the cause of the trouble. It may be the spark or valve timing is wrong. The engine will not develop as much power with coils and battery as it should with a good magneto.

3—A plug piston is not a valve, but if carefully ground a fraction of a thousandth of an inch smaller than a ground cylinder, and if it is not exposed to severe differences in temperature like the piston in a gas engine, it will permit very little leakage past it, even if it is not oiled. As the character of the appliance referred to is not stated, Motor Age cannot say how successful this particular apparatus would be.

4—The valve described is the ordinary pet-cock valve similar to that used on gas fixtures. It is reliable or unreliable, according to how well the screw threads fit. If the screw is loose, the simplest remedy is to get a valve with a screw that fits. If this is not satisfactory, get a screw needle valve of a dealer in pipe fittings.

5—By wearing of the bearings, wear of the commutator and brushes—if a commutator is used—by gradual breaking down of insulation due to oil, dust, etc., and by demagnetization of the permanent magnets. The last, of course, is easily cured by re-magnetizing the magnets.

FROST ON INTAKE PIPES

Mellette, S. D.—Editor Motor Age—Kindly answer through the Readers' Clearing House the following questions: What effect on the power of the engine does the carbureter have when it becomes cold enough to collect frost on the outside of the pipe running from the carbureter to the engine, and how may it be remedied? I have tried three different makes of carbureters and all have the same trouble. Do tires filled with Numastic tire filling give as good satisfaction as pneumatic tires? If not, why?—John Oberle.

Any liquid absorbs heat on evaporation and gasoline is no exception. The effect of the frost on the pipes is to make the mixture so cold that the gasoline remains in a liquid state instead of evaporating and mingling with the air. In other words, the mixture is defective and probably more gasoline than necessary is required. The remedy is to warm the air before it enters the carbureter, which can be done by taking it from a jacket around the exhaust pipe, or partly surrounding the cylinder. The air should be warmed only enough to counteract the frost. Motor Age has had no experience with the tire filling named by the correspondent.

SIZES OF VALVES

Chicago, Ill.—Editor Motor Age—Continuing the subject of automatic intake valves, will you kindly state through the medium of the Readers' Clearing House what is considered the general practice for a mechanically-operated intake valve on a motor with cylinders 5¼ by 6 inches; that is to say, what would general practice consider the correct diameter of the valve?—G. W. H.

It is customary to make mechanically-operated inlet valves the same diameter as the exhaust valves and to design them for a velocity of gas or mixture through them not greater than 100 feet per second, based on mean piston speed. Assuming the engine in question to run at a maximum speed of 900 revolutions per minute, a diameter of 2 inches for the valve opening would be the minimum. The tendency is toward larger valve diameters, which permit the engine to hold its efficiency without material loss at high speeds. Probably 2¼ inches would be better.

DISPUTES "DESIGNER"

Leadville, Colo.—Editor Motor Age—Referring to the article in your issue of November 29 by "Designer" on the subject of pre-ignition, it occurs to me that in some respects the theory advanced regarding the slow operation of the motor, when self-igniting, is in some respects in fault. He states that in his opinion this slow operation is due either to the self-ignition being insufficient to properly fire the charge or to the fact of its occurrence later in the cycle than the normal spark. My experience has been that a motor running under these conditions will operate slowly for a few revolutions and then back fire violently, thus proving conclusively that the self-ignition takes place so far in advance of the normal spark that the maximum explosive effort is produced before the piston reaches the top center, this early explosion being the direct result of the self-ignition. The early occurrence of the self-ignition will also account to a large extent for the pounding noticed in the cylinder under these conditions and which is also observed when operating at a very slow speed with the spark advanced too far, the conditions in the cylinder being practically identical.—H. B. Barnes.

LEGAL LIGHTS AND SIDE LIGHTS

NEW MISSOURI BILL

The St. Louis Automobile Club has sent the draft of a bill to Jefferson City that will be introduced in the legislature next month. It is quite a voluminous document, and repeals the motor car act of 1903. Among other things, it requires that owners of motor cars shall register the machines with the secretary of state, describing their vehicles, and upon payment of an annual fee of $2, obtain a license. No other license will be exacted for the use of such machines upon any of the public highways of the state. Drivers must also be registered with the secretary of state, and no unregistered driver will be allowed to operate a motor car. A license card will be furnished by the secretary of state, 3 inches in length and 1 inch wide, with Arabic numerals, and no other license tag will be necessary. In cases of accidents, it is made the duty of the driver to not only give his own name and the number of the machine and the owner thereof, but also the names of any persons who may have been in the vehicle when the accident occurred. The maximum speed upon the highways is limited to 25 miles an hour, and within municipalities to 10 miles an hour. Where motor cars are sold or exchanged a provision is made for noting the change by the secretary of state. Drivers are prohibited from operating motor cars without permissioin of the owner. Undoubtedly one of the objects of the bill is to get rid of the present law, which requires a separate license for each county, and also for some of the cities, under which a machine, in being driven extensively about the state and being plastered with a different license tag in each county, soon resembles in appearance the cloak of the pied piper. There are also regulations in the bill to prevent accidents, one of them being that when signaled by someone driving horses or riding them the driver of the car must stop until the horses have passed his machine and a possible accident avoided.

VERMONT TALKING LAW

There has been considerable agitation against motor cars in Vermont lately and the sessions of the legislature have been marked by lively tilts on the question. Some of the representatives were in favor of excluding cars altogether from certain roads; other members favored the exclusion on certain days of the week. Governor Fletcher Proctor gave out a statement on the question not long ago in which he said the farmers had built the roads after years of hard work and had kept them in repair. At present many of these people were afraid to travel on the highways with their horses because of the large number of motor cars that raced through the state, ignoring the rights of others. Governor Proctor said that the residents of the state should be protected, as their livelihood was interfered with because they could not drive to market. This not only affected the farmers, but also the people in the large towns, who could not get commodities. The governor suggested that laws be passed, based on those in other states, licensing the driver and the machine. The legislature had been wrestling with a bill, and a new one was substituted last Saturday along those lines. One provision that is liberal is the speed limit of 25 miles in the open country. This bill probably will be passed.

CLUB HELPS POLICE

Members of the Automobile Club of Maryland have decided to coöperate with the police in discouraging reckless driving by indifferent operators. Marshal Farnen has begun the crusade against the drivers of cars by distributing copies of the state laws regulating motor cars and their operators to each member of the police department, with instructions to carry out the law to the letter. In consequence of this action on the part of the marshal, which has been indorsed by the club members, a number of arrests and fines have resulted. One of the terrors to careless drivers is Park Policeman Norris, who has been equipped with a high-speed motor cycle for the purpose of apprehending offenders of the speed law.

RECOMMENDS AGE LIMIT

A grand jury has handed to Judge O'Sullivan in the general sessions court in New York city, a presentment advocating a law preventing youths not 18 years old from acting as chauffeurs or drivers of motor cars, that all who do so should first pass an examination and be licensed by the state, and that in the punishment of those convicted of a second offense imprisonment should be added to a fine. The presentment was the last act of the grand jury before its official life was ended. When it filed into court the foreman, Monroe L. Simon, addressing the judge, said: "From the experience of its members in the discharge of their duties of grand jurymen, their observations as residents of this county, and information laid before this grand jury, it is of the opinion that the lives of our citizens are constantly in danger, caused by the reckless driving of motor vehicles through the streets of our city and the exceeding of the speed limit as laid down by the law, by said vehicles, more especially endangering persons of old age and children going to and from school. We find by investigation that a large number of these vehicles are being run by persons under the age prescribed by the ordinances of the city, and therefore recommend that a more stringent law be enacted which would prohibit anyone from operating these vehicles who had not attained the age of 18 years. We also find upon investigation and from the complaints laid before this body that young boys are employed under the age of 18 years in driving and running express and delivery wagons, thereby causing a large number of deaths and serious accidents. We also recommend that a law be enacted that all chauffeurs or drivers of motor cars should pass an examination, and if found capable, be licensed by the state; and that no other persons than those obtaining such license should be permitted to run motor vehicles of any kind whatsoever. We also present to this court the fact that the light penalties imposed upon chauffeurs or people running motor vehicles at a speed exceeding the legal limit are insufficient to remedy the evil, and would recommend that the penalty for a second offense should be not only fine but also imprisonment."

RESPONSIBILITY IN FRANCE

A French court has decided that a motor car driver causing a child's death must compensate the parents for the expense of bringing up the little one. The decision was rendered at Havre. Tharaud, a machinist employed by the Chenard-Walcker company, motor car manufacturer, of Asnieres, was driving a car from Paris to Etretat in August when he ran down a little girl at Gonneville-la-Mallette. Forty-eight hours later the child died of her injuries. The police inquiry showed that Tharaud was driving at an excessive rate of speed and did not sound his horn. Consequently, he was charged with manslaughter, and he has now been sentenced to 2 months' imprisonment. The importance of the case resides in the question of damages. The parents of the child obtained a sum of $1,200, for the payment of which the motor car firm was declared responsible. The court upheld the contention that, although purely moral damages are difficult to estimate in such cases, the persons responsible for an accident must compensate the parents of the victims not only for the expenses of the funeral and mourning, but also for the cost of bringing up the child from its birth to its death. This decision is expected to establish a precedent in France, where the authorities are doing everything in their power to apprehend those responsible for accidents caused by motor cars traveling at high speed on the highways of the republic.

IN THE REALM OF THE COMMERCIAL VEHICLE

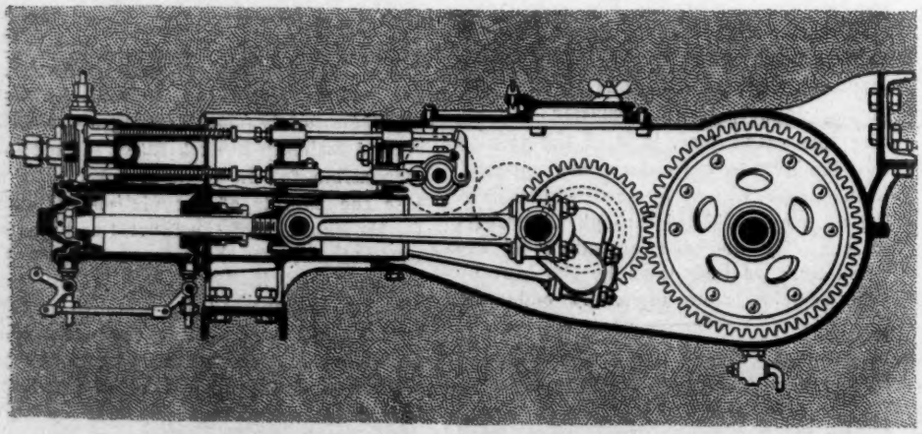
IN LAST week's issue of Motor Age, besides describing the nineteen vehicles entered in the 1,000-mile military road test in France, the progress of the different vehicles during the first 8 days of the run was referred to. Readers will recall the phenomenal showing made by the steam Darracq-Serpollet omnibus and the two trucks of this make, as well as remembering how these vehicles were pushed from day to day by the shaft-driven de Dion-Bouton trucks, as well as by the Berliet, Peugeot, Mors and Cohendet, and even how the six-wheel Janvier did remarkable work, carrying its 5-ton loads at an average speed of 6¼ miles an hour over the varied roads of the route. After a rest during the day of the Marseilles exposition the homeward route of eight easy stages began. The first day was Marseilles to Avignon, 59.37 miles; second day, Avignon to Montelimar, 50 miles; third day, Montelimar Vienne, 73.75 miles; fourth day, Vienne to Macon, 60 miles; fifth day, Macon to Autun, 61.87 miles; sixth day, Autun to Auxerre, 80 miles; seventh day, Auxerre to Melun, 75 miles; eighth day, Melun to Paris, 25 miles. The last run was made exceedingly short in order that the competing vehicles should arrive at Tuileries gardens not later than 10 o'clock in the morning. The story of the arrival in Paris on the last day and the completion of the wonderful test was the repetition of that of many previous days and was significant in that the three Darracq-Serpollet steam cars finished in front of the seven gasoline machines that successfully completed the trip. Following the steam cars on their arrival were the Peugeot, Mors, two de Dions-Boutons, two Orions and the Berliet. In all ten machines successfully completed the test, nine having fallen by the wayside, their withdrawal being due in cases to too weak construction and in other instances due to the use of poor tires. A couple of machines were incapacitated because of accidents on the road. Of the ten machines successfully completing the run, several were placed on exhibition in the commercial department of the Paris salon. These were the three Darracq-Serpollets, Berliet, Peugeot, Mors and the de Dion-Bouton; the others, for various reasons, were not exhibited, but taken immediately to their factories.

DARRACQ-SERPOLLET STEAM CAMION THAT PERFORMED WONDERFULLY

In the latter half of the run rural communities displayed an interest in the event not less striking than that evidenced during each stage of the first half. From morning till night peasants lined the roadsides watching the passage of the machines and cheering the different contestants as they hurried along. Among the contestants the spirit of rivalry apparent in the first half of the run lagged considerably, a fact due to the advantage shown in speed in the steam machines and also owing to the fact that one or more of the best representatives of the gasoline class were disabled in the first half and compelled to withdraw. Considerable team work was shown from day to day among the contestants, a fact which made it possible for the three Darracq-Serpollet cars to finish ahead of all others many days of the run. Had the final award been based on the speed of the cars there would be no doubt as to the winner of the test; such was not the case, so it is impossible even at this moment to pick the winners, although in all probability one of the steam cars will be a factor.

No little commotion was created among the contestants by the announcement that Minister De la Guerre had donated $5,000 to be distributed among the contestants according to the points made by their machines. For this distribution the vehicles were divided into three classes—the first with a minimum of 190 points, the second 150 and the third 150. In the points made by the different vehicles a careful scrutiny was conducted from day to day and points noted on the robustness, endurance, regularity and general performance of the motor. These points were valued in the following proportions: Feasibility of springs, 5; regularity of speed on the entire sixteen journeys, 4; consumption of fuel per ton kilometer, 3; average speed per hour throughout the test with a maximum of 12½ miles per hour, 2; number of repairs made throughout the 16 days and the time required in each, 2; accessibility of the various parts of the cars, 1; ease with which they were handled on the road, 1; protection of such parts as motor, clutch and gearbox so as to conceal them in time of war, 1. Using these ratios as the co-efficients the winner will be adjudged.

A passing study of the chassis of the Darracq-Serpollet machines gives every evidence of careful construction as well as good design. As might be expected,



VERTICAL SECTION OF DARRACQ-SERPOLLET STEAM ENGINE

DARRACQ-SERPOLLETS LEAD IN MILITARY TEST

DARRACQ-SERPOLLET OMNIBUS IN MILITARY TEST

steam is generated in a flash generator of the Serpollet type, located in front of the dash and under a bonnet not unlike that used in the modern gasoline touring car. In front of this is a large, many-coiled condenser. The two-cylinder motor is carried horizontally beneath the framework of the car, slightly in front of the back axle. Its cylinders lie side by side, and drive from the crankshaft to a jackshaft, carrying the differential by spur gears enclosed within the crankcase of the engine, as is the differential. Drive to the back wheels is by side chains. Mounting the motor in this manner leaves the entire top part of the truck free for load-carrying purposes, and has the additional advantage of placing good weight over the back axle, thus increasing the tractive force of the car to a great extent. It may be deemed by some that this is not the most accessible position for the engine, a fact which is undoubtedly open to criticism, but by removing part of the flooring of the truck access is gained to the top portion in which the valves are carried, they being over the cylinders. To make examinations of the crankcase a large inspection plate is fitted on top, and the general construction of the motor throughout is such that it is not a difficult matter to examine the various parts or make replacements. Engine control is automatic in that a special device has been fitted whereby the regulation of the steam pressure is taken away from the driver and cared for by the engine. Steam of a high degree of superheat is used, and the engine is designed to operate at high speeds. The plan view of the chassis shows how closely the makers have followed lines laid down in gasoline car construction. The pressed steel framework is narrowed in front to increase the turning angle of the steering wheels, and also take the support of the generator without recourse to a sub-frame. Midway of the axles and towards the rear the side pieces are stiffened by cross braces with heavy gusset plates. Over the back axle a novel system of braking is used, taking the form of an X with the opposite arms braced to the side pieces of the frame. Springs in front and rear are of the half-elliptic type and axles are of steel. Twin tires are carried on the rear wheels and single bands in the forward wheels.

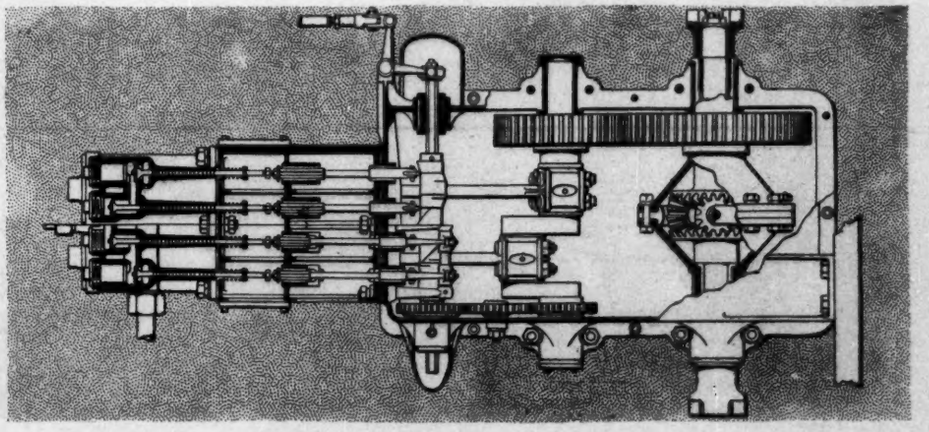
BRITAIN ADVANCING

Orders for over $1,000,000 worth of motor omnibuses recently have been placed in Germany to meet the pressing demand for these vehicles in London. In answer to English protests against the seeming failure to patronize home industries, E. H. Owens, a member of the English Institution of Motor Engineers, says: "There is little doubt that the announcement that a large order for motor omnibuses destined for London has been placed abroad in Germany will cause surprise to many of the British public. Such vehicles can only be produced successfully by large engineering factories. Long since I strenuously endeavored to find even a single firm in England which could undertake the manufacture of motor omnibuses to my design. But it was of no avail; all seemed quite afraid of embarking in the business, though I could guarantee many thousands of pounds' worth of orders. And the result was that I was forced to go abroad, as I had had to do before for other engineering work. Now it is easy for me to supply motor omnibuses by the hundred, for the foreigner is eager for business. In the motor engineering industry he is beating the Englishman hands down for quality, for workmanship and, not least, for price. It is all very well to cry 'Pro Patria,' but what must one do when enterprise in one's country is absent?"

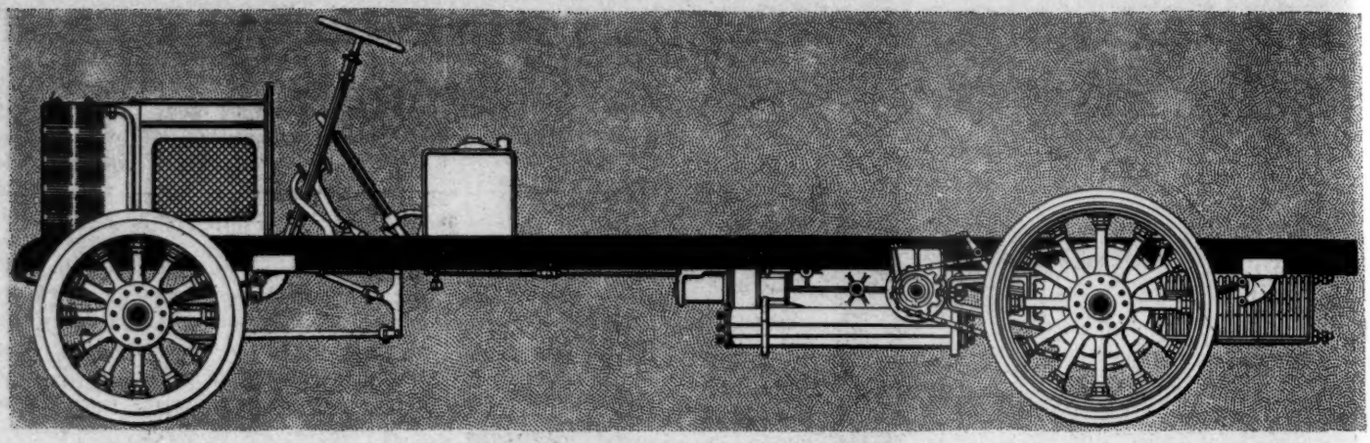
The British postoffice department proposes to use motor mail wagons where at present horse mail wagons are used, and it is so well satisfied with experiments made with motor mail wagons as to intend to introduce them on all the long-distance horse-coach routes, and later to carry not a little of the mail now dispatched by train. This proposed larger use of motors for mail purposes, taken in connection with the experiment that is now being made in North Staffordshire to carry pottery to Liverpool and grain from Liverpool by large motor freight wagons, is one of the significant developments of the use of motors in the United Kingdom. It behooves the wonderful postal establishment of the United States to get busy on this proposition of motor mail wagons. Other countries have taken the matter up with alacrity and steady progress is reported from all such experiments.

LARGE ELECTRIC TRUCK

Among the motor trucks that have been built by Indianapolis concerns this year is a 2-ton electric truck, recently completed at the Pope-Waverley factory for the Lee Broom & Duster Co., of Boston, Mass., a firm that is said to be contemplating an



PLAN VIEW OF DARRACQ-SERPOLLET STEAM ENGINE



SIDE ELEVATION OF CHASSIS OF DARRACQ-SERPOLLET STEAM TRUCK

elaborate motor trucking system for the near future. In design and appearance the truck is one of the most attractive that has been built at the Indianapolis factory of the Pope Motor Car Co. It is propelled by two motors of Pope-Waverley design, of double reduction, suspended from the chassis in front of the rear wheels. The battery equipment is forty-two cells of m. v. Exide, in thirteen plates. Several speeds are provided for, making the truck easy to operate in congested business districts. That the truck is expected to do the service of several horses and wagons is evidenced by the large carrying space afforded by the body, which is 16 feet long, 6 feet wide and 7 feet high, inside measurement. The slat sides are surmounted by a water-proof canvas top, additional protection from the elements being provided by drop side and end curtains. Wheels are of wood of the artillery type and are fitted with 4 by 36-inch solid rubber tires, front and rear. Brakes are of the hub and countershaft type, and the steering is a wheel with sector and pinion. Double side-chain drive is employed. The finish of the truck is especially attractive, the body being finished in snow white. The lettering is done in gold with a green outline, while the gears are finished in grass green. On each side of the driver's seat and on the side curtains appear the Lee company's seal in a combination of the colors employed on the body and gears.

USING SHOCK ABSORBERS

In America the shock absorber, which has come in for general adoption in pleasure cars, has, thus far, not received the slightest attention in regard to commercial vehicles, whereas, in no class of machine should their use be of greater value, as vehicles of this type are compelled to use rough streets a great deal of their time, which means accessive vibration and abnormal wear and tear on the motor. In commercial vehicles, while carrying a load is the main consideration, the speed of the machine also comes into notice, due primarily to the fact that many buyers are after a high-speed machine. The frequent and considerable variation in the weight of the load makes it impossible to use a spring suspension that will give the best results under such variations. In commercial machines accessive weight is carried on the axles, which means a small amount of flexibility so as not to exceed the limit of elongation to which the metal in the springs should be submitted, consequently, the reaction on the frame of the car is considerable with a full load, at these times the proper spring suspension is in great need. As a matter of fact, the resistance of springs to flexion is calculated for the maximum load that can be carried and, consequently, with lighter loads the greater are the shocks communicated to the frame of the car. It is to overcome this condition that shock absorbers are recommended, they, at times of light load, performing exceptionally valuable service, which action, however, gradually decreases with the increase of the load, at which time, however, the flexion of the spring increases to its maximum, thus caring for the additional jar. It is customary abroad to fit shock absorbers at the ends of the springs interposing them between the spring and the frame, the preference being to this manner rather than fitting an absorber directly between the axle of the car and the framework. Shock absorbers in most cases are of the friction type, but attention has been directed to those of the compressible fluid variety, which style affords an easier but not quicker action than the former. Any device which fully complies with the conditions already mentioned, that of caring for the vibration on light loads if the springs are set for best resilience on heavy loads, or vice versa, may be regarded as practical shock absorbers, but otherwise if they are intended to act at the same time that the spring does and not complement the spring's action, their value is immeasurably impaired. It is readily recognized that by the fitting of such shock absorbers considerable advantage accrues to the suspension system, with the result that the longevity of the motor is vastly increased, as is that of the entire power generating and transmitting system. Another advantage is that the speed of the vehicle can be increased at least 20 per cent without undue strain on the machine, the only evil effect being the extra wear on the four rubber tires. In recapitulating, a good suspension system

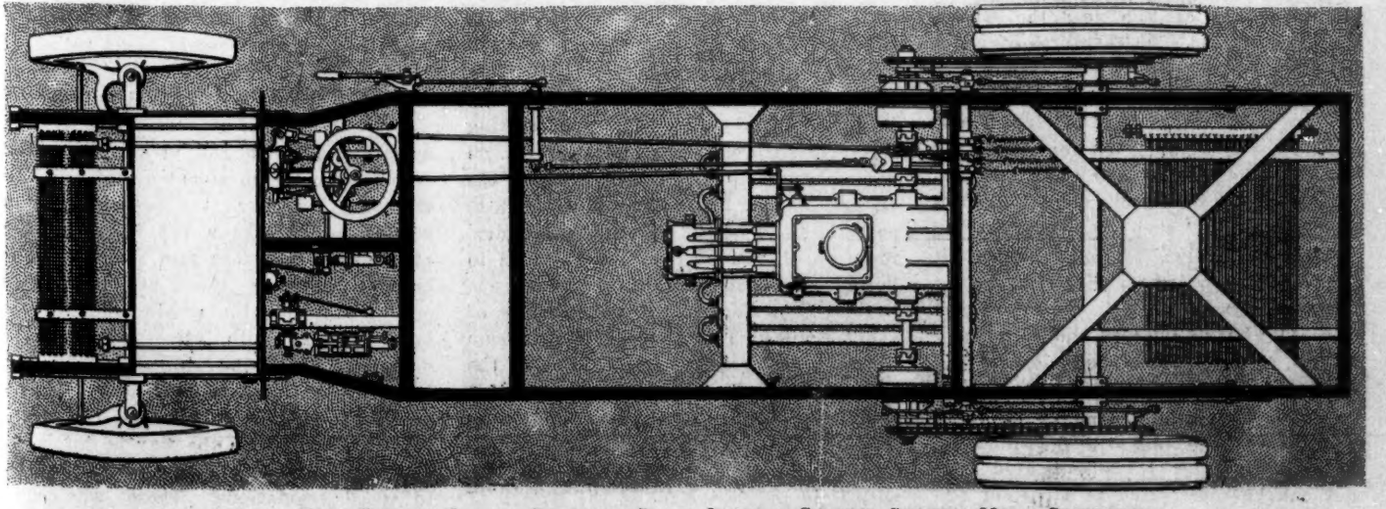
JANVIER SIX-WHEELER THAT AVERAGED 6¼ MILES AN HOUR WITH 5-TON LOAD

should include springs intended for a maximum load, coupled with shock absorbers, always exerting their influence, but intended primarily to act in case of light loads, when the regular springs are too stiff to care for the vibration. Shock absorbers in every case should be designed to automatically vary their resistance according to the load placed upon them, that is, when carrying little loads variations should be easier than when a heavy load is carried.

SEIBERT'S OBSERVATION CAR

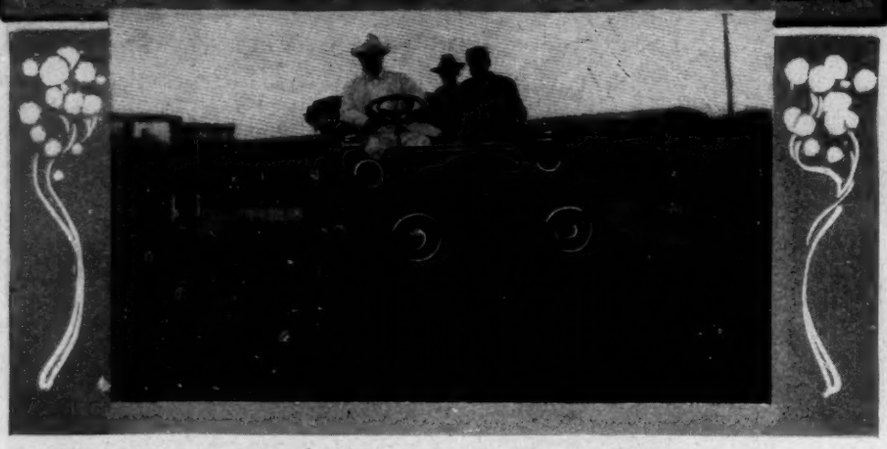
The Seibert observation car is manufactured by the Shop of Seibert, Toledo, O. This commercial vehicle was in operation most of the summer, carrying sight-seeing passengers between places of interest about the city. The car seats twenty people. The frame is constructed of I-beam steel, reinforced by wood, the side members also being provided with truss rods. The planetary transmission, giving two speeds forward and one reverse, is hung from this frame, and a Brennan engine is suspended from four points on a subframe, of 3-inch channel steel. The engine has two cylinders, each 5½ by 6 inches, of the horizontal opposed type, providing 20-horsepower at 700 revolutions. Geared five and one-half to one on high, the car attains a speed of from 10 to 15 miles per hour, although 20 miles in the hour have been made. The cylinders are water-cooled, a valve pump being used to force the water through to a flat-tubed Kinwood radiator in front. The water tank has a capacity for holding 10 gallons. The radiator is finished in brass. A Leavitt ball contact commutator is provided. Lubrication is through six force feeds, a sight oiler being provided. The crankcase is of cast iron. Alcohol as well as gasoline can be used. The tank under the front seat holds 17 gallons. The carbureter has done 14 miles on 1 gallon of gasoline. The batteries are of the three-cell capacity. A double Williams' coil is installed. The drive is by a Diamond roller chain to jackshaft and side chain drive to rear wheels, the main driving chain running close to the right side of the frame, so the strain on the jackshaft and differential gear does not come on the center of the jackshaft but at one end near the large shaft bearing. This shaft is so constructed that the main driving chain can be tightened or loosened, something new in motor car construction. The wheelbase measures 126 inches. The car has been run steadily for 7 hours, carrying three parties of eighteen people, and covering ninety miles. The axles are of the roller bearing type, the front one being I-beam, the rear square. The wheels are of wood, artillery type, and of Swartz make, with spokes, twelve to each wheel, all four wheels being 34 inches in diameter. The tread of the car is 64 inches. The springs are full platform, front and rear. They are made of Swedish steel, are 44 inches long and 3¾ inches wide. The tires are Firestone solid rubber, 34 by 4 inches. The brakes are of the Raymond pattern, and work on two drums on the rear wheels. The throttle and spark are controlled from the top of the steering wheel. The high speed and reverse are controlled by a lever, reverse and low speed being under the control of foot pedals. The low speed is only used for starting, the car running entirely on high gear. The steepest hills and grades in the Toledo section of Ohio have all been taken in the high gear with a full load of passengers. The body of the car is constructed of wood, and is very roomy. Four cross seats are provided with a large rear entrance tonneau. The seats are leather trimmed with spring backs and hair cushions and are slightly elevated, one above the other, so occupants of the car are given all the advantages of sight-seeing. The car is also provided with a canopy top and in conjunction with it are drop side and front curtains equipped with suitable window spaces. The car is admirably suited for sight-seeing purposes, all the year round and in spring and fall, when desirable the canopy top can be removed. Solid tires are the only kind adaptable on a vehicle of this class, as on front and rear wheels the single style is made use of. The wheelbase not being too long enables maneuvering in congested places in city thoroughfares.

SEIBERT SIGHTSEER LOADED



PLAN VIEW OF DARRACQ-SERPOLLET STEAM OMNIBUS CHASSIS, SHOWING MOTOR SUSPENSION

FROM THE FOUR WINDS



PRESIDENT ROOSEVELT FINALLY BECOMES A MOTORIST

Two Show Dates—Dates for the Philadelphia and Buffalo shows have been selected, the quakers picking the week of January 5-12 and the bisons from February 18 to the 25th inclusive.

Runs Out of Gasoline—Asheville, S. C., had a fuel famine last week caused by the failure of the weekly tank car of the Standard Oil Co. to arrive. A few gallons of gasoline were secured by express from a neighboring town, which the doctors eagerly grabbed, but the majority of cars stayed in the garages over Sunday.

Show for Kansas City—Kansas City will hold its first show in its big convention hall the week of March 4-10, inclusive. The show will be held under the management of the International Automobile Show Association. The convention hall is described as an ideal place for an exposition of this kind. It has a floor space of 110 by 185 feet and seating capacity for 15,000 people. The association is located in the Willis Wood theater building, and its officers are: Louis W. Shouse, chairman; D. M. Snively, secretary; Frank L. Woodward, manager and treasurer. Diagrams are being sent out.

South African Outlook—During the first 9 months of this year the United Kingdom shipped $200,000 worth of motor cars to South Africa, a considerable advance over any previous year. For use on the Rand a car on general touring or runabout lines is suitable, but for use on the roads which intersect the veld, and frequently on the veld itself, special features of construction, such as extra strong springs and well-raised bodies, to admit the negotiation of spruits and water courses, are essential. For use in any part of South Africa aluminum bodies are very popular, as wood, unless exceptionally well seasoned, warps badly under the subtropical sun. The talk of providing motor roads in South Africa is said to find extensive favor, for it is estimated that they can be constructed at a cost of $2,500 per mile, as against $20,000 per mile of railway, and that motor coaches would carry passengers and mail more expeditiously and with greater economy than a railway.

Selects a Standard Plug—The mechanical branch of the A. L. A. M. has adopted a standard spark plug, favoring one of ⅞-inch diameter with a straight eighteen pitch thread coming up to the shoulder.

Buy Wholesale—The Nizam of Hyderabad has just placed an order with the Napier people for eight models of their line, seven of them being six-cylinder cars which will be used by the Nizam and his suite, while the eighth, an 18-horsepower four-cylinder machine, will be used for a pilot car when his nizams goes touring.

Oldsmobile Racing Plans—In every race of importance next year an Oldsmobile will be one of the starters. Already work has been started on two racing cars at the plant and it is the intention of the company to enter one of these in every road race. The cars soon will be ready for tests. One of them will be a stripped stock car of 40-horsepower and the other a six-cylinder developing 100-horsepower. The 40-horsepower car will be in several events at Ormond and also will participate in hill-climbing and beach racing throughout the year. The six-cylinder will be entered in road races.

Cleveland's Road-Building Scheme—The Cleveland Automobile Club is making active preparations to commence work on a sample stretch of good road which the officers of the club recently decided to promote as an object lesson of what ideal roads should be. It has been decided to improve the extension of Euclid avenue beyond East Cleveland for a distance of about 3 miles. The village of Nottingham has become greatly interested in the project. The village has an appropriation of $20,000 for the building of a highway through the town, and the club is endeavoring to induce the village to join with it in the movement so the stretch of good road referred to may go through the village. Contributions amounting to several thousand dollars have already been secured by the promoters.

Farmers Suggest a Tax—At the last meeting of the Massachusetts State Grange the farmers suggested that motor cars be taxed according to their horsepower to cover their proportionate cost of road repairs.

Quaker Endurance Run—The Quaker City Motor Club, recently organized and which has a membership of 235, has decided to promote an endurance run to Harrisburg and return on January 1. For this event a $500 silver cup is offered as a perpetual trophy by McDonald & Campbell. In addition, H. B. Stillman, of the Mercedes company, announces that he will give a gold medal for cars costing under $1,500 which enter the test, similar to the Deming trophy of the Glidden tour. The rules provide that each car must carry four passengers, so that Mr. Stillman's offer will give the runabouts and smaller cars a chance.

Teaching Tire Repairs—More attention is being given nowadays to the art of repairing pneumatic tires and several concerns are giving this important matter their attention. In this connection it is noted that the Continental Tire Co. has assigned one of its expert tire specialists to a free demonstrating service, sending him to the leading factories to give practical demonstrations of the art of mounting and dismounting clincher tires. The instruction covers all phases of the tire question such as style of rim, precautions necessary to prevent injury to the rubber and directions for getting from the tire the maximum value. Then, too, the Chicago School of Motoring, 264 Michigan avenue, Chicago, will start a class January 15. The class will be taught all the details of vulcanizing and repairing tires.

President Roosevelt Drives—President Roosevelt's feeling toward the motor car is a matter of common knowledge, for there have been but few occasions when he has consented to ride in one. It is therefore somewhat of a surprise to learn that during his recent visit to Porto Rico he not only spent several hours riding in a car but also actually tried his hand at driving it. One of the high officials of the Porto Rican government who had much to do with the arrangements for entertaining the president owned a White steamer. He asked the president if he would like to take a run inland in the car and the president said that he would be "de-lighted." When about 25 miles out of the city the president, who had been watching with interest the driver's manipulation of the throttle, said: "I believe I can run this machine." He was asked to take his seat behind the steering wheel, and then the way he hit it up along the road showed he gave no thought to speed regulations. Those who rode with the president during his afternoon's

outing firmly believe it will not be long before the chief executive is numbered among the ranks of motorists.

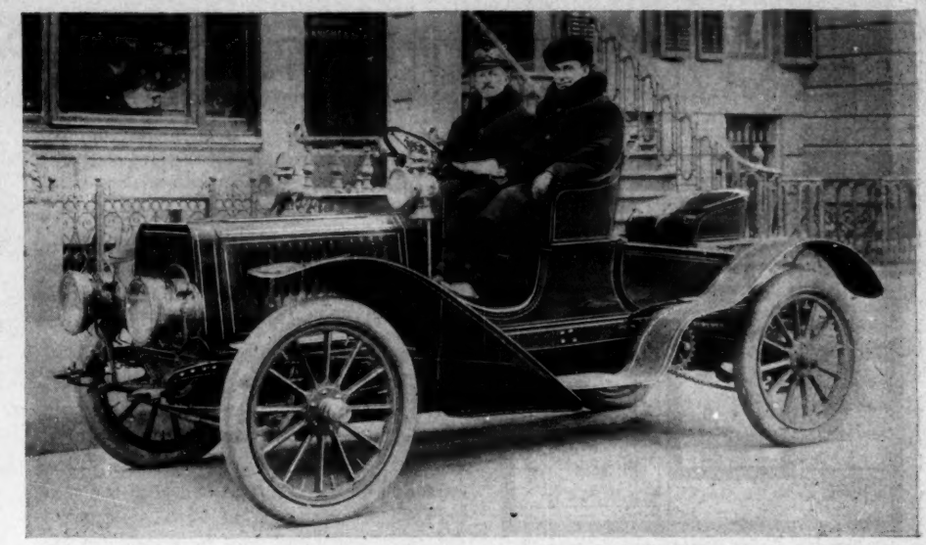
C. I. Critchett Dead—Charles I. Critchett, of the selling force of the Chicago Winton branch, died last Saturday after a brief illness. Mr. Critchett was a cycling veteran, at one time being secretary-treasurer of the Chicago Cycling Club. He formerly was an agent for the Winton bicycle.

Dunn Gives War Lecture—Through the courtesy of the Pope company, the Washington Automobile Club was tendered a lecture Monday night on the Russian-Japanese war by Robert L. Dunn. The lecture was accompanied by a pictorial narrative of the greatest conflict of modern times, embracing slides from the choicest photographs made by Mr. Dunn, the only series of moving pictures taken at the front.

British Statistics—It is estimated that the amount of capital now invested in the industry in Great Britain well exceeds $58,398,000, and the total output of vehicles of all kinds by British manufacturers for the current year cannot fall far short of 18,000, with an approximate value of $21,899,250. It is interesting to note that British manufacturers are beginning to make important progress in their foreign trade, the exports for the first 10 months of the current year having been $2,996,133, as compared with $1,750,221 in the corresponding time of last year.

From New York to Chicago—R. G. Kelsey, one of the proprietors of Brooklyn Life, and Frank Lescault, mechanical engineer connected with the Matheson Co., of New York, has started in the yellow and black Matheson runabout to make a run from New York to Chicago. The route is by the way of Albany, Syracuse, Rochester, Buffalo, Erie, Cleveland, Toledo and Chicago. Mr. Kelsey has made a wager that he will reach Chicago within 1 week's time. He will send into the office of the Matheson Co. of New York, each day a report of the journey.

Italy's Growth—At the end of 1905 there were in Italy only 2,164 motor cars, of which forty-five were commercial vehicles. In nine Italian provinces there was not a single car. The provinces of Milan and Turin had each 300 cars only. The capacity of 848 of the cars was between 6 and 12-horsepower, 451 cars were 12-16-horsepower, 425 less than 6-horsepower and 295 over 15-horsepower. Naples containing twenty-six cars for public service. At the end of 1906 there are 100 motor car factories in operation in Italy and full of orders; their cambined capital is $45,000,000. The Fiat works alone employ over 7,000 men. C. H. Tangeman, back from Italy, tells of the Fiat six-cylinder traveling as slow as 6 miles an hour and as fast as 71 in a trial in Italy. He says in the 15-horsepower town chassis the differential gear has been eliminated from the rear axle and placed integrally with the gear box.



R. G. Kelsey Starting in Matheson for Chicago Trip

Grand Rapids After a Show—Grand Rapids will have a show the latter part of March. Those in charge of the plans and who will soon name a committee to select a hall are W. D. Vandecar, Alvah Richmond, Mort Luce, J. F. Johnson, Frank V. Dean, Charles V. Dean, Eric M. Lubeck and George Hart.

Wants Garden Decorations—The managers of the Cleveland show are planning to arrange with the management of the coming Madison Square garden show to secure the elaborate decorations to be used in the garden. Applications for space, according to Manager George Collister, are way ahead of this time last year.

Washington Show Dates—Under the auspices of the Washington Automobile Dealers' Association, a show will be held there during the week of January 28-February 2. The new Dupont garage at 2020-30 M street has been selected. The garage has an immense amount of floor space and while it is a little off the beaten track, it readily can be reached by two car lines. The committee in charge of the show is as follows: C. Royce Hough, C. E. Miller, W. C. Long, J. M. Stoddard, T. A. Walter, A. L. McCormick and B. C. Washington, Jr.

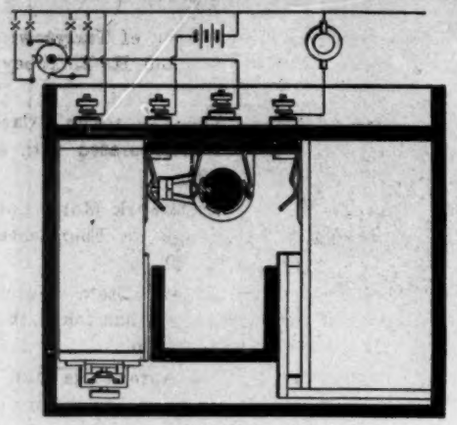
Boston Space All Sold—Manager Campbell has announced that all the floor space for the Boston show has been allotted. In all it amounts to just 105,000 square feet, which is larger than most exhibitions. The Boston show will have all classes of cars, licensed and unlicensed, on exhibition. It was thought at first that there might be some difficulty because of this fact, but it is not anticipated now that there will be any friction. What is likely to happen in future shows here, however, is a segregation of motor cars and motor boats. At the present time Boston has two shows in one, the basement of the big hall being given over to boats. Some of the dealers seem to think the motor boats should have a show of their own instead of taking up room in the car show, especially when space is so valuable and cars are crowded into another building.

Novel Sleigh Ride—It has remained for Caro, Mich., to produce a novelty in the motor line. Just after a recent snowstorm W. J. Moore, owner of an Oldsmobile touring car, sent out invitations for a sleigh ride. He had twenty-four acceptances, and the guests were piled into two light sleighs which were hitched to the motor car, which towed them for 16 miles, a stop being made for supper.

Bay Staters Prosperous—The Bay State Automobile Association, of Boston, has been growing considerably of late and now is in fine shape financially. At its regular meeting a few days ago it was decided to limit the membership to 800. It has very nearly that at present. It was also arranged that women relatives of the members might use one of the dining rooms of the club when in town shopping. Another move that will meet with approval by the members, was the arrangement made by the house committee, whereby the Bay State members would have the use of the Salem Country Club headquarters in the summer.

Wedding Party in Motor Cars—Motor cars supplanted hacks at the wedding of Miss Lillian B. Scott and Daniel Webster, which was solemnized at St. Elizabeth's Catholic church in Baltimore. Ten touring cars were used to convey the bride and groom, their attendants and the remainder of the wedding party from the residence of the bride to the church. After the ceremony the bridal party entered the cars again and returned to the bride's home, where a wedding dinner and reception were held. Later in the day Mr. and Mrs. Webster and their friends made use of the cars again when the entire party went to union station, where the newly married couple boarded a train and started on the honeymoon.

CURRENT MOTOR CAR PATENTS



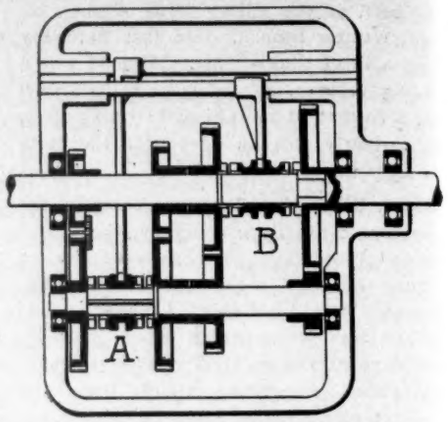
PACKARD'S COIL BOX

Auxiliary Air Valve—No. 838,399, dated December 11, to C. R. Greuter, Wilkes-Barre, Pa.—In this motor the inlet and exhaust valves are in the top and bottom of ports on the right side of the cylinder. On the opposite side of the cylinder is an automatic air valve through which atmospheric air can be admitted to the cylinder in advance of the combustible charge taken in through the intake valve. By means of a rotating shaft and conical cam it is possible to change the amount of opening given this auxiliary air valve, and it is further possible to manually control the opening of this valve so it opens considerably in advance of the regular intake valve. When desired this manual control can be cut out, leaving the auxiliary valve opened by the suction of the motor.

Corbin Transmission—No. 838,259, dated December 11, to A. N. Manross, New Britain, Conn.—The Corbin transmission is of the clutch type and has a mainshaft and a countershaft carried in the same horizontal plane, with corresponding gears on each always in mesh. Changes in speed are made by a pair of clutch mechanisms A and B operated respectively from separate shifter rods. For direct drive, clutch member B is thrust forward, locking the mainshaft of the gearset with the shaft from the motor. For the other speeds ahead clutch B is thrust back, locking the large spur gear to the shaft. Clutch A is moved forward or back for its two speeds. Drive is direct on high speed and the clutch members are rigid with the shafts.

Packard Spark-Coil Box—No. 838,251, dated December 11, to R. Huff, Detroit, Mich.—The ignition combination referred to consists of a magneto for generating current and also storage cells for the same purpose. Current from both of these is led to a spark-coil box in which are two spark coils, one a transformer for the magneto current, and the other a trembler coil for the battery current. Connected up with these is a switch which in one position completes the circuit of the primary and secondary winding of the transformer coil and interrupts the circuit of the trembler coil. When in another position it completes the circuit of the trembler coil and shortcircuits the current from the magneto; when in an intermediate position it interrupts the current from the magneto and battery.

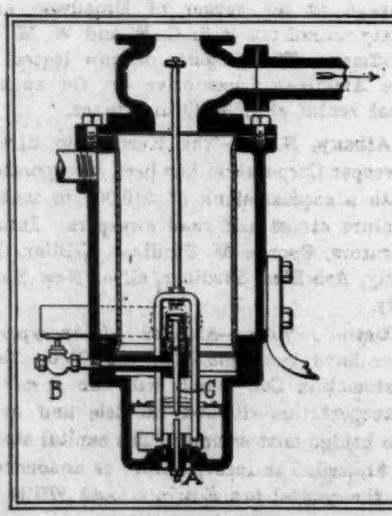
Combination Trolley Truck—No. 838,283, dated December 11, to R. Thayer and J. Ledwinka, Philadelphia, Pa.—The commercial truck referred to carries a storage battery from which current may be taken to propel it and also carries from the top of the seat a trolley pole adapted to engage the overhead wire of a trolley street-car system from which it may take electric current and at which time current is not drawn from the storage battery. In order that the overhead wire may be used without the necessity of having the truck wheels made of metal and travel on the street car tracks to complete the circuit with the ground a separate set of small wheels is used which can be lowered



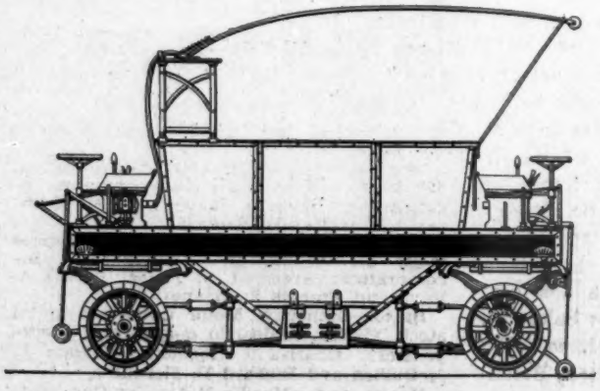
CORBIN'S CLUTCH TRANSMISSION

upon the street car tracks when current is being taken from the overhead wire, at which time the truck operates as does a regular street car. When using current from this source the load-carrying wheels of the truck, which are fitted with heavy wood tires, are traveling outside of the street car tracks. Should it be imperative to leave the street car route to make a trip along a side street, the current from the storage battery is used.

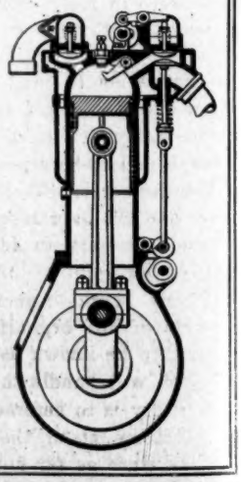
Fuel Carbureter—No. 837,984, dated December 11, to J. H. Vail, Norristown, Pa.—Air enters through a conical-seated valve A in the base of the carbureter. On the upper surface of this valve is a series of curved, vertical, deflecting plates which project over the sides of the valve. Gasoline entering by way of the connection B enters the mixing chamber through the lower end of the small vertical tube C in such a manner that the entrance of the gasoline is in direct opposition to that of the air. Placed above the gasoline entrance C is a series of disk-shaped screens united at their edges in a trough-shaped rim so all air and gasoline passing upwards through the carbureter must go through these screens.



VAIL AUTOMATIC CARBURETER



THAYER'S COMBINATION ELECTRIC TRUCK



GRENTER'S AUXILIARY AIR VALVE

BRIEF BUSINESS ANNOUNCEMENTS

Boston, Mass.—The D. P. Nichols Co. is to represent the Frayer-Miller here.

Chicago.—The Lau-Pearson Motor Co. has changed its name to the Triumph Car Co.

San Francisco, Cal.—J. W. Leavitt is to handle the Wayne in this city and northern California.

Constantine, Mich.—The Holly Automobile Co. has been incorporated with a capital stock of $100,000.

Washington, D. C.—The Commercial Automobile Supply Co. has taken the Wayne agency in this city.

Chicago—L. J. Ollier, the local agent for the Reo and Premier, has opened his new salesrooms at 1344 Michigan avenue.

Akron, O.—Plans have been approved by the officers of the company for another addition to the plant of the Diamond Tire Co.

New York—The Automobile Supply Co. is now installed in its new headquarters at 1733-1737 Broadway. John Lurie is the head of the concern.

Pawtucket, R. I.—The Cameron Car Co., which was formerly located here and now has a factory in Brooklyn, is said to be considering the advisability of returning here again.

Pittsburg, Pa.—The Oakmont Motor Boat Co. has made application for a charter and will maintain a motor car and pleasure boat business, as well as dealing in supplies of all kinds.

Providence, R. I.—Charles F. Thatcher, of the Aetna Bottle & Stopper Co., of 54 Peck street, has taken the local agency for the Grout. He will establish his salesrooms at 49 Peck street as soon as alterations are completed.

Knoxville, Tenn.—A charter has been filed for the Motor Transit Co., which will run a motor bus and passenger line between this city and Sevierville. The capital stock of the company is $2,500, and the incorporators are A. F. Sanford, E. O. Mitchell and N. E. Logan.

Newport, R. I.—James A. Clark, who has handled the Panhard and Mercedes, has rented the quarters at 134 Washington street, formerly occupied by the W. W. Whitten Motor Vehicle Co. It is his intention to take the agency for one or more American cars, in addition to the foreign machines.

New York—Announcement has been made of the organization of a new concern, to be known as the Motor Sales Co., which will handle the Car de Luxe. The territory is to embrace Manhattan, Brooklyn, Long Island, the eastern part of New York state as far north as Albany, northern New Jersey and western Connecticut. Temporary offices have been installed in the Astor theater building. Elmer Dwiggins is to be the general manager.

Richmond, Va.—The Richmond Forging Corporation, maker of forgings, has increased its capital stock to $200,000.

Tacoma, Wash.—A permit has been granted for the erection of a garage on St. Helena avenue at a cost of $4,000.

Chicago—The Kline Co. has been incorporated with a capital stock of $15,000 to manufacture motor cars and parts.

New York—Within the week the old Winton quarters at 1706-18 Broadway will be occupied by the St. Louis agency.

Boston, Mass.—The Barnard & Briggs Automobile Co. has secured the old shoe factory in Woodville and will commence the manufacture of motor cars.

New York—The Palace Garage Co. has bought the plat on the south side of Eightieth street, 102 feet east of Broadway, and will build a six-story garage.

New York—The Mercedes Import Co. has opened its new palace at 590 Fifth avenue. This is the only concern having salesrooms directly fronting on Fifth avenue.

Albany, N. Y.—The Maxwell-Briscoe-Wilcox Co. has been incorporated with a capital stock of $60,000 to deal in cars, carriages, boats, etc., in California and Nevada. The incorporators are Benjamin Briscoe and J. D. Maxwell, of Tarrytown; R. Irwin, N. Betjeman and H. E. Tobey, of New York city.

Detroit, Mich.—The American Carbureter Co. has been incorporated with a capital stock of $30,000.

Newark, N. J.—The Newark Motor Car Co. is erecting a garage on Fourteenth street, at a cost of $7,000.

New York—The Empire State Motor Car Co., of 2150 Broadway, has taken the agency for the Craig-Toledo.

Brooklyn, N. Y.—The Automobile Maintenance Co., of Fulton street, has taken up the manufacture of wind shields.

Boston, Mass.—The Concord Motor Co. has closed a contract with the E. V. H. Co. for the local agency of the Compound.

Boston, Mass.—The Linscott Motor Co., of Columbus avenue, has taken the agency for the Wayne. It already handles the Reo and National cars in New England.

Springfield, Mass.—H. C. & C. D. Castle have taken the New England agency for the Lozier. A garage has been opened on Lyman street, with offices and garage in Boston.

Boston, Mass.—A new company has been formed to handle the Rainier car in New England, under the name of the Buck & Price Co. The capital stock of the concern is placed at $100,000.

St. Joseph, Mo.—The St. Joseph Automobile & Supply Co. has leased the property at Seventh and Francis streets for a term of 2 years and will open a garage as soon as alterations are completed.

New York—Simiotti Brothers have rented the garage at Broadway and One Hundred and Tenth street, where they will establish the headquarters for the Mora. Later on a salesroom for the Mora will be opened on the row.

New York—George C. Boldt has sold his garage at the corner of Broadway and Sixty-second street to C. F. and W. M. V. Hoffman. The property is now leased to the American Locomotive Co. for an annual rental of $33,800 and taxes.

Albany, N. Y.—The Kern Auto Street Sweeper Corporation has been incorporated with a capital stock of $10,000 to manufacture street and road sweepers. Incorporators, George N. Gardiner, William H. Gray, Asa Bird Gardiner, all of New York city.

Detroit, Mich.—Articles of incorporation have been filed for the Belle Isle Automobile Co., which will run a motor transportation line on the isle and over the bridge next summer. The capital stock is $15,000. The incorporators as announced at the capital are Edwin S. and Willis S. Anderson and W. Leon Watson.

RECENT INCORPORATIONS

Freeport, Ill.—Shoemaker Automobile Co.; capital stock, $1,000; to manufacture and deal in motor cars. Incorporators: Edward L. Evans, Charles Mundhenk and C. B. Courtney.

Connersville, Ind.—Ray Motor Co.; capital stock, $100,000. Incorporators: J. J. Maloney, Bowen Ray, W. S. Calder, Louis D. McFall and J. F. Geary.

Elkhart, Ind.—Elkhart Garage Co.; capital stock, $10,000; to deal in and store motor cars. Incorporators: Charles G. Conn, William J. Gropert and Mary E. Landon.

St. Louis, Mo.—Paper Automobile Co.; capital stock, $6,000. Incorporators: Clarence F. Paper, Charles Paper and Frank Hobein.

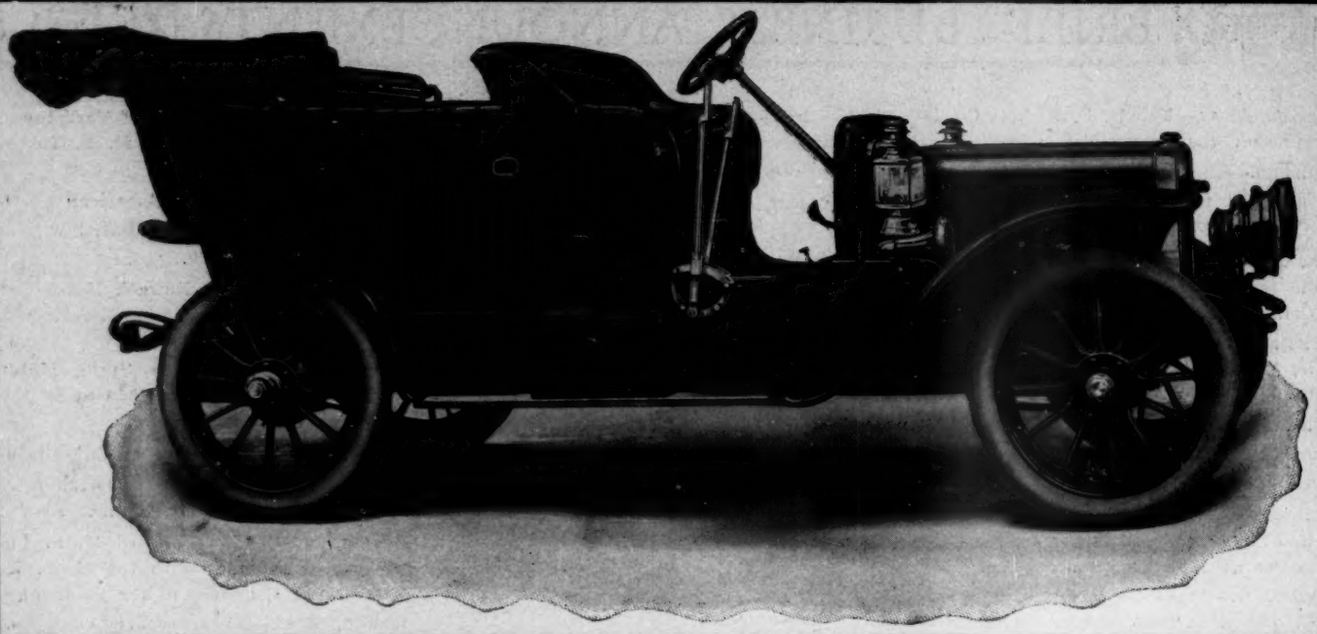
Davenport, Ia.—Davenport Motor Car Co.; capital stock, $10,000; to manufacture gasoline engines, motors, etc.

New York—Arlon Garage; capital stock, $20,000; to deal in and store motor cars. Incorporators: William Huebner, Robert Huebner and Walter H. Saltseider.

Boston—Matheson Co. of Boston; capital stock, $25,000; to handle motor cars. Incorporators: Freeman N. Young, Robert A. Faye and Francis D. Bennett.

Boston—Henshaw Motor Car Co.; capital stock, $10,000; to deal in motor cars. Incorporators: Charles S. Henshaw, William T. McQuillen and Richard D. Henshaw.

Marion, Ind.—Murillo Motor Car Co.; capital stock, $25,000; to deal in motor cars. Incorporators: Wilbur M. Myers, Lembert W. Coppock and Harry F. Reynolds.



WE MAKE GASOLINE MORE POWERFUL

by means of Offset Cylinders; by removing obstacles.

New style WINTON Cylinders are mounted "off center" from the crank shaft.

So, when the combustion of gas produces power, WINTON power puts its full strength into driving work, because the power-impulse is practically straight down—not off to one side, on a big angle.

Same difference in results as between hitting a nail squarely on the head and striking a glancing blow. Glancing blows waste energy, and bend the nail. Old style cylinders (not offset) waste power in side thrusts, and hurry their decay in "knocking."

WINTON

Model M has many other exclusive advantages.

Four-cylinder, 40 H. P. motor.
Cylinders and pistons perfectly ground and balanced.
Mechanical valves; all on one side of motor.
Single cam shaft; offset to save power.
90 H. P. Multiple Disc clutch; least inertia; most compact; smoothest starting.
Four speeds ahead; selective, sliding-gear transmission.
Countershaft at rest on direct third speed.
Clutch and transmission run on annular ball bearings.
Winton Precision carbureter throttle; instantaneous hand and foot control.
Mechanical "Shooting" oiler.
Winton Twin Springs, perfected.
Four brakes; all on driving hubs.
Wheels and pinion shaft run on taper roller bearings.
Drive shaft horizontal under normal load.
New idea, roller-type universal joints.
Reserve gasoline tank; never runs out of gasoline unexpectedly.
Jump spark ignition.
Wheel base, 112 inches.
Instant access to working parts.
Bearing surfaces accurately ground.
Tested materials assure safety.
Trunk carrier, five lamps, horn and tools included as equipment.
Seats seven passengers.
Price, $3,500 f. o. b. Cleveland.
Book 3 gives the facts in detail.
Book 4 describes the four-cylinder, 30 H. P. Winton Type X-I-V., admittedly the $2,500 leader for 1907.

THE WINTON MOTOR CARRIAGE CO. MEMBER A.L.A.M. **CLEVELAND, OHIO, U. S. A.**

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We shall exhibit in New York at the 7th National Automobile Show only, Madison Square Garden, January 12-19, 1907.